AID Report 60-25

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CBR WARFARE RESEARCH AND CIVIL DEFENSE OF THE USSR AND COMMUNIST CHINA

A BIBLIOGRAPHY

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INTRODUCTION

This is a compilation of available material in English and other languages published during 1946-1959 on Russian and Chinese Communist chemical, biological, and radiological research, including civil defense against CBR warfare. Whenever possible an annotation accompanies each bibliographical entry. The bibliography consists of 584 entries. This is a preliminary study.

Library of Congress call numbers (location symbols) appear on the right, at the end of the main entries in this bibliography whenever the source is cataloged in the Library of Congress collections. The symbol DNLM is used for those sources available in the National Library of Medicine.

No location symbols have been used for the sources that either have not been cataloged at this time, uncataloged materials now available in the various Divisions of the Library of Congress, or sources identified in references but which could not be located.

1. ABDULLINA, R.N., and others. Influence of pentoxyl and thesane of the peripheral blood picture in radiation sickness. Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 2, no. 1, 1958, 39-44.
R91.P66, v. 2

A study was made of the effects of pentoxyl and thesane-25, which stimulate leukopoiesis, on the leukopenia produced in rabbits following exposure to massive doses of cobalt-60 gamma radiation. Treatment with thesane and pentoxyl before irradiation decreased the degree of leukopenia and delayed its development. In thesane-treated animals marked waves of leukocytosis were observed against a background of radiation-induced leukopenia. When leukopenia was already present neither pentoxyl or thesane exerted any beneficial effect. No information is included on the chemical nature of the compounds used. Translation: JPRS-285.

2. AIRIKYAN, YE.A., and others. Effect of radiophosphorus on the conditioned reflex activity in dogs. Meditsinskaya radiologiya, no. 1, 1959, 19-26.
DNLM

The experiments were staged on four dogs with varying types of nervous activity. The method of conditioned food reflexes was used. Radiophosphorus introduced orally in therapeutic and indicatory (40-80 mC/kg body weight) doses provokes changes in the higher nervous activity of animals. Intensification of conditioned reflexes in the day of P^{32} administration and the following inhibition of the conditioned reflex activity is the most typical action of radiophosphorus on the cerebral cortex. The depth and duration of the changes depend on the typological features of the animals. The cerebral cortex is highly sensitive to the action of internal β-irradiation. This should be considered in its therapeutic use.

3. AKADEMIYA NAUK SSSR. Institut mikrobiologii. Izotopy v mikrobiologii: Trudy konferentsii po primeneniya mechenykh atomov v mikrobiologii (Isotopes in microbiology: Transactions of the conference on the application of tracer atoms in microbiology). Moskva, Izd-vo Akademii nauk SSSR. 1955. 238 p.
QA505.A55

Nineteen papers are included which place emphasis upon applications of isotopes as tracers in studies of metabolism in microorganisms. Techniques and experimental peculiarities of tracer techniques are discussed. The mechanism and kinetics of isotope exchange are reviewed. Topics discussed include:

applications of radioisotopes in investigations of the viruses responsible for diseases of plants, animals, and humans; the pentration of phosphorus-32 into cells of microorganisms and subsequent transfer to the host plant; a procedure for developing labeled Brucellae and their use in the study of the pathogenesis of Brucellian infection; the role of iron in the metabolism of obligate anaerobes of the genus Clostridium; the study of phosphorus exchange and the liberation of phosphorus-32 and carbon-14 from the substances of yeast cells during the fermentation process; the influence of vitamins upon the biosynthetic processes of microorganisms; a study of the exchange of phosphorus-32 in the chemosynthesis of sulfate-reducing bacteria; the influence of carbon dioxide upon the development of heterotrophic microorganisms in relation to conditions in the medium; the use of carbon-14 in the study of the formation of organic matter from mineral components in aquatic environments and the comparative values of photo- and chemosythesis in lakes of various types; the role of microorganisms in the nutrition of trees; the use of tracers in the study of the mycotrophy of trees; the consumption of organic matter synthesized by microorganisms in the roots of plants; and the part played by microorganisms in the roots of plants; and the part played by microorganisms of the rhizospheres in vitamin and amino acid nourishment of plants. 301 references. Translation: AEC-tr-3494.

4. AKSEL'ROD, L.B., and others. Course of experimental tuberculosis in conditions of ionizing irradiation. Meditsinskaya radiologiya, no. 12, 1559, 48-52. DNLM

Investigations staged on rabbits divulged that whole-body irradiation (400 r) temporarily arrested the progress of the tuberculous process and lengthened the life span of animals as compared with the control group. The effect of similar irradiation on uninfected animals, who were kept together with the infected ones, provoked spontaneous infection with tuberculosis.

5. ALEKSANDROV, S.N., and others. Change of the radioresistance in the irradiated organisms. Meditsinskaya radiologiya, no. 11, 1959, 15-19. DNLM

The change of the radioresistance in irradiated animals is indulating in character and consists of the alternating periods of rise and decrease of the animals resistance to the repeated irradiation (400 r). The character of the radioresistance changes depends on the dose of the primary irradiation, particularly, on whether the given dose was below the

threshold causing radiation sickness (120 r) or above it (240 r). Variations of the radioresistance in the irradiated animals coincides with the same change of their resistance to the action of a number of other alternating agents. The author revealed a considerable difference in the radioresistance occurring directly after the irradiation with the dose provoking radiation sickness, as compared to that following irradiation dose below this threshold. In the first case the mortality rate of the animals decreases during radiation sickness, as well as during the period of late infectious complications connected with repeated irradiation. In the second case late infectious complications are not included in the period of animal resistance. The occurrence of malignant tumors in the animals repeatedly irradiated during the period of radioresistance does not differ from that in the control group (single irradiation with 400 r).

6. ALEKSANDROVA, M.V. Effect of ACTH of the hypophysis and the suprarenal cortex extract on the hematopoiesis of irradiated animals. Meditsinskaya radiologiya, no. 10, 1959, 21-26. DNLM

The author's investigations staged on 186 male rats demonstrated that the Soviet preparations of ACTH (of prolonged action) and the suprarenal cortex extract possess a higher activity and induce distinct changes of hematopoiesis in intact rats. The action of the preparations referred to on the hematopoiesis of intact and irradiated rats is different. In animals subjected to a single irradiation the injections of ACTH (from the first day following irradiation) reduced the severity of hematopoietic affection. The influence of the suprarenal cortex extract on the irradiated rats was not considerable.

7. ALEKSANDROVICH, Ye.I. Bone changes in the postnatal period in the offspring of rabbits subjected to the action of ionizing radiation at different time periods of pregnancy. Meditsinskaya radiologiya, no. 10, 1959, 30-34. DNLM

The investigations performed disclosed that the most pronounced changes in the development of bones in the postnatal period in the offspring of rabbits, subjected to intrauterine irradiation with a single total dose of 300 r, could be noted on the 13th day of pregnancy, rather than on the 20th day following irradiation. These data are similar in roentgenological and in histological

investigations. Changes noted roentgenologically show retardation in the growth of bones lengthwise and delay in the appearance of ossification nuclei in the long bones of the extremities. Histological changes in the same bones of the offspring of rabbits consist of proliferation of bone marrow elements, thickening and swelling of intercerebral septa, reduced blood supply, development of connective tissue and thinning of intercerebral septa.

8. ALEKSANDROVSKAYA, M.M. Influence of varying doses of ionizing radiation of the morphology of the animal's brain in total irradiation. Meditsinskaya radiologiya, no. 8, 1959, 79-81. DNLM

9. ALEKSANDROVSKAYA, M.M. Some morphological and histopathological changes occurring in the central nervous system of white rats irradiated during the antenatal period. Meditsinskaya radiologiya, no. 11, 1959, 10-14. DNLM

Disturabances of embryogenesis in different structures of the brain (atrophy of the cortex of large hemispheres, corpora callosum, striatum, hippocampus) were observed in the progeny of white rats at remote dates following total irradiation of the gravid animals in the dose of 200 r. Besides, edema of the brain and in some cases, even hydrocephalus was noted in the embryos. Defective development of the laminar and the areal structures of the strata, as well as underdevelopment of the V and VI strata of the cortex and large hemispheres in cases complicated by hydrocephalus is, evidently, connected with the fact that the embryos were irradiated at the period of embryogenesis when the cells of the lower cortical layers were the most sensitive to irradiation. The neuroblasts of the superior layers, which mature later than the inferior ones, are disturbed to a lesser degree. The mechanism of morphological changes in the animals irradiated during the antenatal period of development is associated not only with the direct injurious effect of ionizing radiation on the nerve and glia cells (primitive neuroblasts and spongioblasts) at early stages of ontogenesis, but also depends upon the toxic-anoxic and metabolic changes developing in the brain.

10. ALEKSEYEVA, O.G. Adsorptive properties of tissues of irradiated organism and their changes in penicillin therapy. Meditsinskaya radiologiya, no. 11, 1959, 66-71. DNLM

The experiments were staged on rabbits subjected to x-ray irradiation (800 r). The absorptive properties were studied with the cells of blood, liver, kidneys, spleen, small intestine, mesenteric ganglia and muscles with respect to live culture of staphylococcus albus. In the irradiated rabbits the changes of adsorption were insignificant - they did not lead to the impairment of this protective function of the organism. The changes were most pronounced in the liver and were characterized by an increase of the adsorptive capacity. The introduction of penicillin for curative purposes to nonirradiated animals could provoke an inhibition of adsorptive properties of tissues, whereas in the irradiated rabbits this inhibitory influence of penicillin was less distinct; moreover in the first 3 days following irradiation it even activated the process. In author's opinion, the intensification of adsorptive properties in the liver and kidneys upon the action of various irritants on the organism demonstrates the compensatory ability of the latter.

11. ALEKSEYEVA, O.G. Effect of x-ray irradiation on the resistance of white mice to B. typhi abdominalis. Vestnik rentgenologii i radiologii, v. 32, no. 1, 1957, 8-14. TM845.V4, v. 32

White mice were sensitized by intraperitoneal injection of 2.5 million B. typhi abdominalis Felix Ty_2 or 50 million B. dysenteria Flexner No. 26-w. Four days later they were subjected to total x-ray irradiation with a LD $^{10}/_{13}$ dose (300 r). Experiments on 250 mice showed that in irradiated mice the biologic effect of a sensibilizing dose increases from DL $^{18}/_{13}$ to DL $^{48}/_{13}$ typhus and from DL $^{3}/_{13}$ to DL $^{24}/_{13}$ for dysentery. Mice sensitized with B. typhus abdominalis and irradiated died after periods typical for radiation sickness, but developed also bacteriemia pointing to a complicated pathologic process. The degree of active antityphus immunization developed after sensibilization by the stated method was determined by intraperitoneal inoculation of 2 DCL (200 million) on the 1, 3, 5, 7, 10, 20, 30 day after irradiation with 300 r. Experiments of 600 mice have shown that the earlier developed immunity does not change during the first days of radiation sickness. During the III period of radiation sickness (3-10th days) and in the reparation period (20-30th days) the survival of experimental mice is 40-45 percent less than of the unirradiated controls. The reduced tension of active immunity is also manifested by inhibition of phagocytosis in vivo, accumulation of enormous amounts of bacteria in the place of injection, and, protracted bacteriemia.

12. ALEKSEYEVA, V.M. Cell protection by fatty materials against radiation damage. Biofizika, v. 3, no. 1, 1958, 100-107. QH505.A1B53, v. 3

Lipid accumulation was observed to afford a protective effect against radiation injuries in Endomyces magnusii maintained in a modified Rider's culture media. If carbohydrate sources predominate in the medium, the organisms are fat rich, and if the nitrogen is high, they are fat poor. Fat-rich cells were found to oxidize substrates at about one-third of the rate shown by fat-poor ones. Fat-rich cells were found to be about 30 per cent more radiostable than fat-poor ones. Irradiated cells metabolized their internal reserves less rapidly if rich in fat, anti-oxidants reduced the viability of irradiated cells by about 25 per cent, and large fat and lipid reserves had a marked effect on intracellular oxidation rates. It was concluded that the radioprotection is linked with intracellular oxidation.

13. ALESHIN, V. Radiation reconnaissance and troop's actions in localities affected by radioactivity in winter. Krasnaya zvezda, 1 Feb 1955, 2. U4.K78 1955

The article gives some instructions and suggestions how the Soviet troops should protect themselves against the effects of radiation in atomic warfare. Summary: AF 667369

14. ALPATOV, V.V. A review of J.A. McCormick's book "Isotopes". A bibliography of United States. Research and Application, 1955-1958. Meditsinskaya radiologiya, no. 12, 1959, 84. DNLM

15. ALPATOV, V.V. A review of S.N. Nikitin's book "Introduction to radiobiology". Meditsinskaya radiologiya, no, 5, 1959, 93-94. DNLM

16. AMOSOV, I.S. Change of pulmonary blood vessels in experimental radiation sickness. Meditsinskaya radiologiya, no. 9, 1959, 33-38. DNLM

Using the method of angiocardiography the author studied the specific features of pulmonary circulation in 67 rabbits in physiological conditions and in radiation sickness of the II and III degree, induced by a single total x-ray irradiation (1000 r). During the period of primary radiation reaction after the initial dilatation the tone of all pulmonary vessels considerably increases the blood flow slows down, there appear areas of decelerated

blood circulation (hypostasis) and the Bainbridge reflex disappears. As a result of the above conditions are created for retrograde movement of the contrast substance along the inferior vena cava into the dilated vessels of organs of the abdominal cavity. In the latent period there is noted a relative normalization of blood circulation, however, the signs of dystonia of pulmonary vessels are preseved. At the peak of the affection there is seen in the majority of experimental animals stenosis of arteries, veins and all minute vessels of the lungs, a deceleration of blood flow and repeated disappearance of the Bainbridge reflex. Due to dystonia of vessels there occur vast areas of retarded circulation (hypostasis) of segmentary or lobar nature. During the period of recovery dystonia of small pulmonary vessels was preserved for a prolonged time and the pulmonary circulation was more accelerated as compared with normal conditions. The author concludes that functional and anatomical changes of pulmonary vessels are only of the manifestations of the general disturbance of hemodynamics in the irradiated organism. Their occurrence is connected first of all with the disturbance of mechanisms of reflex regulation of blood circulation.

17. ANDREYEVA, O.S. Hygiene assessment of labor conditions of workers having contact with certain radioactive minerals. Meditsinskaya radiologiya, no. 12, 1959, 59-63. DNLM

With the use of atomic energy in various fields of the industry the problems of labor hygiene of workers who are in contact with radioactive minerals are of paramount interest. The author has revealed that in the study and processing of various minerals containing uranium, the workers could be subjected to a complex action of a number of factors. The most essential of the latter are radioactive dust, radon and, in certain instances, external gamma-radiation. A detailed analysis of the external environment enabled to divulge not only uranium aerosols, but also some products of its radioactive decay, in particular aerosols of radium and polonium. The article recommends measures of sanitation of labor conditions, directed towards the elimination of radioactive dust and radon in the working premises, as well as the institution of hygienic measures of radioactive contamination control of the equipment, protective garments and the hands of the workers.

18. ANDREYEVA, O.S., and others. Specific features of beta-radiation in work with uranium. Meditsinskaya radiologiya, no. 5, 1959, 58-62. DNLM

Report on new data on the change of intensity of beta radiation in casting of uranium as a result of redistribution of beta-active products of UX_1^{234} and UX_{11}^{234} decay and increase of surface beta activity in thermal treatment. As a result of experiments performed it was revealed that recently obtained bars of metallic uranium with slag residue may be the source of beta-irradiation (60-160 $\frac{\text{beta particles}}{\text{cm2/sec}}$) of workers. In the immediate vicinity from the surface of the metal (0.3-0.4 m) the radiation intensity reaches 200-570 $\frac{\text{beta particles}}{\text{cm2/sec.}}$.

Following cleaning of the surface of the bars and removal of slag the activity drops by 40-60%. The investigations have also exposed a possibility of beta-active products of uranium decay into the slag, which may also be a potential irradiation hazard. Subsequently the slag activity diminishes by 50% in 3-5 weeks, which corresponds to the period of UX_1^{234} half-life (Th^{234})-T=24.5 days. Special attention is to be paid to the authors' data on the possibility of beta-active products of uranium decay entering into the body along with dust. The activity of air filters was assessed on the "B" type device. The content of beta-active aerosoles in the premises was within the limits of 8.3×10^{-13} ---6.2×10^{-12} C/l. The authors submit paper recommendations for the improvement of the sanitation measures.

19. ANDRIYASHEVA, N.M. Effect of x-ray irradiation of gravid animals on the morphological composition of the blood and their off-spring. Meditsinskaya radiologiya, no. 11, 1959, 42-47. DNLM

In irradiation of gravid rats up to the 12th day of pregnancy the hematological signs of radiation sickness are absent in their progeny. Upon irradiation on the 12th-14th day of pregnancy marked hematological symptoms of radiation sickness are found in the newborns when the gravid rats are subjected to irradiation on the 15th-16th day of gestation; the above coincide with the term of myeloid tissue formation in the bone system.

20. ANISIMOVA-ALEKSANDROVA, V.V. Morphological changes of various peripheral nervous system components in the action of ionizing radiation on the organism. Meditsinskaya radiologiya, no. 11, 1959, 3-9.
DNLM

The author investigated the nerve elements in the dura mater and the eye muscles of animals subjected to the radiocobalt (Co^{60}) irradiation (in the daily dose of 100- 1500 r in case of rabbits, 400 r in guinea pigs and 600- 900 r in rats). The highest radiosensitivity in the dura mater was manifested by the afferent nerve conductors, the cylinders of which become degenerated and disintegrate in 2-3 days after the irradiation. Delicate sympathetic fibers were found to be more resistant. The sensory nerves and their endings remain intact in the eye muscles of the same animals; at the same time the motor nerve fibers and their terminal ramifications in the motor end plates appear to be the least resistant and exhibit various degrees of injury up to complete degeneration and lysis of the end-plate neuofibrillar apparatus from which only the protoplasmic soles are left. As experimentally demonstrated the elements of the perpheral nervous system exhibit a considerable, morphologically manifested, reaction to the action of ionizing radiation. The radiosensitivity exhibited by various peripheral nervous system components is far from being uniform; this depends not only on their nature and functional significance, but also on some still obscure factors.

21. ANOYLOV, S.YE. Scientific conference on "certain biochemical effects caused by ionizing radiation". Meditsinskaya radiologiya, no. 8, 1959, 93-95.
DNLM

22. Anti-atomic radiation section of the people's liberation army. Action after an atomic bomb blast. Chieh-fang chün hua-pao, no. 53, Aug 1955, 8-9.

This article is concerned primarily with military maneuvers under simulated conditions of an atomic attack. Several photos show men in protective clothing and lying in trenches to avoid blast effects. There is considerable use of heavy field equipment in this operation and one example of a road grader scraping the road of several layers to get rid of contaminated earth.

23. ANTIPENKO, YE.N. Indices of the hemorrhagic syndrome and change of the 17-ketosteroids content in the urine in acute radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 26-31. DNLM

Comparison was made of the usual hemorrhagic syndrome with the change in contents of the final products of metabolism of the hormone of the suprarenal cortex. The hemorrhagic syndrome in acute radiation sickness in dogs, caused by irradiation in the dose of 400 r, has no connection with exhaustion of the function of the suprarenal cortex, at least to the degree when it is reflected in the contents of 17-ketosteroids in the urine. The decrease of permeability and fragility of capillaries which is noted at the period of recovery from radiation sickness is, possibly, connected with the increased activity of the suprarenal cortex.

24. ANTIPOV, V.V., and others. Prophylaxis of radiation sickness. Meditsinskaya radiologiya, no. 1, 1959, 63-65. DNLM

Experiments were performed on 392 mice. The authors assessed the protective properties from total x-ray irradiation of a number of preparations, decreasing the radiosensitivity of the body (para-aminobuterophenone and its formaldehydedisulfate derivative, and para-aminobuterophenone). The preparations were introduced into the esophagus one-three hours prior to irradiation. The first two agents were administered to a 20% ethyl alcohol solution, the third-in 0.5% aqueous solution. The doses were 50-100 mg/kg body weight. The animals were irradiated with the dose of 900 r. The investigations revealed that the largest protective effect is possessed by para-aminopropiophenone and its formaldehydedisulfate derivative in the dose of 50 mg/kg body weight, introduced one hour before irradiation. Approximately 20-25% of mice survived in this method of administration.

25. ARBUZOV, S.YA., and others. Effect of phenatin upon the course and outcome of penetrating radiation injury. Fiziologicheskiy zhurnal SSSR, no. 12, 1957, 1191. QP1.F57 1957

Rabbits and mice were treated with the drug phenatin after exposure to radiation with favorable results. The article was written from results of experiments conducted in the Department of Pharmocology, S.M. Kirov Military Medical Academy.

26. ARBUZOV, S.YA. Protective action of certain pharmacological agents in radiation injuries. IN: Akademiya meditsinskikh nauk SSSR. Vestnik, v. 13, no. 6, 1958, 10-22. R95.A625, v. 13

Gives results of investigations of some of the most effective: phenatine, methylphenatine, prepylphenamine with mercamine and its salts; and unithiolo (new sulphurous preparation), cytosterines, and insulin. The subject heading is biological sciences-radiobiology. Translation: JPRS L-568-N.

27. ARDASHNIKOV, S.N., and others. Dosimetry of ionizing radiations of finite range. Biofizika, v. 3, no. 4, 1958, 494-515. QH505.A1B53, v. 3

A method for calculating the integral beta dose is presented in which the finite range of the particles is allowed for. In essence it amounts to replacing the normal dose calculation by the calculation of the total range of the particles in the object. Its particular advantage is the comparatively simple and direct way this is done.

28. ARDASHNIKOV, S.N. In regard to the remarks of I.K. Petrovich and N.O. Razumovsky on the symposium "Data on the toxicology of radioactive substances" (Letter to the editorial board). Meditsinskaya radiologiya, no. 1, 1959, 83-85. DNLM

29. ARDASHNIKOV, S.N., and others. Principal dosimetric units in the "Recommendations" of the international commission on radiological units. Meditsinskaya radiologiya, no. 1, 1959, 73-77. DNLM

30. ARKHIPOV, M., and others. Engineering defensive means against atomic weapons. Kryl'ya rodiny, no. 5, 1956, 21. TL504.V683 1956

Information about the Soviet civil defense arrangement. Describes the effects of shock waves, light radiation, and ionizing radiation from an atomic blast. For immediate collective protection the basements of large buildings, subways, and tunnels are suggested. Preferable among these are structures of reinforced concrete with steel frame work. Also it is possible to use the gas and bomb shelters from WW II after constructional modifications are made. Separately standing shelters may be constructed from reinforced concrete, stones, bricks, or even timber and it is necessary that they be partially or entirely underground. Shelters should be supported by vertical supports or other structural reinforcements in the ceilings. All shelters should

have two entrances and two exits that are sealed against radiation and blast effects. Fresh air is supplied by a filter ventilation system containing: air intake duct, air tubes, anti-dust filter, hermetical valves, absorption filter, and ventilator. Shelters must have necessary food, furniture, communications lines, and fire fighting equipment. Lesser means of protection are embankments, folds in the terrain, slit trenches, lean-tos, etc. For individual protection one should use a gas mask and protective cloak or other improvised means. In cities fire fighting, medical, communications, and evacuation organizations must be maintained, as must high morale. One photo is included of a slit-trench shelter. Translation: AF1045140.

31. ARLASHCHENKO, N.I. Change of vascular permeability and capillary fragility in relation with hemorrhagic phenomena in rabbits following the action of ionizing radiation. Meditsinskaya radiologiya, no. 4, 1959, 10-16. DNLM

The sharpest increase of vascular permeability following irradiation of rabbits (1,000 r) takes place in the first hours after the action of ionizing radiation. At this time there is seen a sharp increase of quantity of the intravenously introduced fluoresein in the anterior chamber of the eye, as compared to normal conditions. The resistance of capillaries of the rabbit's small intestine in relation to the rate of external pressure, causing hemorrhages in the intestinal wall, drops more considerably at late stages of radiation sickness. The period of largest changes of vascular resistance coincides with the time of appearance of hemorrhages in internal organs of the animal.

32. ARTAMONOVA, V.A. A study of the problem of the influence of ionizing radiation upon the antigenic properties of proteins. Meditsinskaya radiologiya, no. 8, 1959, 42-48. DNLM

The antigenic structure of nucleic nucleoproteids, cytoplasmatic granules and hyaloplasm from the liver of irradiated rabbits was compared with that of corresponding fractions of healthy animals in anaphylaxis reaction with desensitization. The investigation demonstrated that the antigenic component is present in all fractions of the irradiated liver. In the fractions of nucleic nucleoproteids and cytoplasmatic granules of irradiated tissues one of the components of normal tissue, which was contained

in the hyaloplasm of irradiated animals, could not be revealed, Immunization of rats with proteins, changed by irradiation, did not raise their resistance to irradiation.

33. Atomic defense in the USSR. 24 June 1959. Soviet open sources of 1957-1958. Compiled in AID Report No. AF1255900.

Excerpts from speeches and publications are quoted. The Soviet citizen appears to be well informed as to the effects of atomic warfare. There is no indication of plans for mass evacuation of the population from cities in the event of thermonuclear attack. The entire territory of the USSR is covered with a network of well organized and trained civil defense units. There is no indication that the USSR is preparing atomic bomb shelters: the main objective appears to be interception of the attack. Authorities in the USSR are convinced that the enemy will use chemical and bacteriological weapons in the event of war. The subject heading is engineering-safety.

34. AVAKYAN, TS.M. Disturbances in retinal function caused by weak irradiation. Biofizika, v. 3, no. 1, 1958, 114-116. QH505.A1B53, v. 3

The electroretinogram was recorded before and for 1 to 2 hours after x-radiation exposure of isolated frog eyes. An attempt was made to determine the mechanism of the changes occurring in the retina after exposure to small doses of x-radiation. The possibility was considered that the activation, form active radicals which act upon the visual purple, especially on its protein component which contains a sulfhydryl group.

35. AVETIKYAN, B.G., and others. Influence of x-ray irradiation on chronic focus of autoinfection. Meditsinskaya radiologiya, no. 1, 1959, 50-53. DNLM

On the basis of experiments conducted on mice with an experimentally induced focus of autoinfection (effected by ligation of a portion of the cecum), the authors conclude that in instances when the autoinfection focus is limited by barriers and the infectious process becomes chronic, the ionizing irradiation is unable to provoke the development and generalization of the infection.

36. Avoidance of atomic bomb blast. Chien-fang chün hua-pao, no. 44, Nov 1954.

This is a Chinese article on Russian military maneuvers under simulated conditions of atomic blast. A chart is given (in kilometers) designating the safe distance from blast, shock and radiation. Photos show troops in protective clothing and in some cases troops hovered on moving tanks to avoid touching contaminating earth while passing through a radiated zone.

37. Bacterial warfare. Chinese medical journal: special issue, v. 70, 1952. DNLM

A propaganda work denouncing United States usage of bacterial warfare in Korea and North-east China. A large segment of the journal is devoted to detailed descriptions on characteristics of, breeding of, and preparation of various disease carrying pests as well as germ cultures. Following this was another segment concerning several means of delivery of these germs against the enemy. In all cases the Chinese communists claimed that the U.S. had used these means. In another section devoted to a record of Japanese use of germ warfare during the second world war, the Chinese communists claimed that one Ishii Shire, who formerly directed a plant for the production of germ warfare materials has assisted in the direction of germ warfare in Korea. The plant that Shiro previously managed was located in the city of Harbin, in the old state of Manchukuo. [It can be noted here that Harbin came under the jurisdiction of first Russia and then Communist China following Japan's defeat.]

38. BAGDASAROV, A.A., and others. Anti-leucocyte antibodies in hypoplastic anemia and chronic radiation sickness. Problemy germatologii i perelivaniya krovi, no. 3, 1958, 217-222. DNLM

Antiboides against leukocytes were discovered by the agglutination method in the sera of patients with chronic and partial hypoplastic anemia, chronic radiation sickness, the hemolytic anemia. Agglutinins to leukocytes were not found in the sera of healthy persons. Repeated investigations of the serum showed the persistant presence of leuco-agglutinins, especially in patients with partial hypoplastic anemia. Under the influence of cortisone and ACTH therapy a fall in the leuko-agglutinin titer was observed.

39. BAGDASAROV, A.A., and others. Certain problems of the clinical picture and course of acute radiation sickness in monkeys. Meditsinskaya radiologiya, no. 9, 1959, 17-24. DNLM

The authors studied the course of acute radiation sickness in 8 monkeys (Macacarhesus) subjected to single whole-body x-ray irradiation (in the dose of 540 r). Four monkeys underwent treatment according to a scheme elaborated by the Central Order of Lenin Institute of Hematology and Blood Transfusion, with the employment of polyvinyl-pyrollidon, colloid infusin, thrombocytic mass, hemostimulants and other pharmacological substances. Four monkeys served as control. All monkeys developed acute radiation sickness with manifestations of toxemia and characteristic changes in the peripheral blood and bone marrow. There was observed regular changes in the coagulating system of the blood, as well as in the content of serotonin and properdin in the blood. The control monkeys perished in the course of the first two weeks following irradiation, while all the monkeys treated-survived. At the 40th day following irradiation the indices of hemo- and myelogram in the monkeys treated reached the initial values; clinically the monkeys were absolutely healthy.

40. BAGDASAROV, A.A., and others. Main problems of radiation trauma. IN: Akademiya meditsinskikh nauk SSSR. Vestnik, v. 12, no. 4, 1957, 39-45. R95.A625, v. 12

Results are summarized from recent studies on the pathological effects of radiation, with particular references to the nervous system. Translation: AEC-tr-3611.

41. BAGDASAROV, A.A., and others. The Properdin system in acute radiation sickness. Meditsinskaya radiologiya, no. 4, 1959, 3-10. DNLM

In acute radiation sickness in dogs, mice, guinea pigs, and rats, caused by total x-ray irradiation in the dose of LD 75-100, the authors observed a drop of the properdin level in the second half of the disease, usually several days before the death of animals. In the surviving dogs, as a rule, no drop of the properdin level in the blood was noted. In rabbits affected with acute lethal radiation sickness there was seen no decrease of the properdin system activity. The properdin titer in monkeys usually decreased soon after the irradiation; the activity of the properdin system was not restored.

42. BAGRAMYAN, E.R. Course of the exudative phase of inflamation in irradiated animals. Meditsinskaya radiologiya, no. 8, 1959, 23-28. DNLM

An exudative inflammation was induced in female rats by the method of Selye. The protein composition of the blood serum and the inflammatory exudate was studied electrophoretically. In the irradiated rats (400 r) there was noted a change in the character of the inflammatory exudate and inhibition of the exudative phase of inflammation. The blood serum disclosed a diminution of the albumin content, an increase of α_1 -α_2 - and β-globulins. During the course of inflammation the blood serum of irradiated and nonirradiated rats showed almost analogous changes: a drop of albumin fraction, a rise of α1-, α2- and β-globulin fractions with the intensification of the severity of radiation sickness. The γ-globulin fraction showed a tendency to decrease in the blood serum of irradiated rats with inflammation. All protein fractions of the serum in normal and irradiated rats passed into the inflammatory exudate. The percentage content of albumins and β-globulins in the exudate of nonirradiated rats was higher than in the serum, while that of α1- α2-, and γ-globulins -lower. Changes in the percentage content of albumins and γ-globulins in the exudate of irradiated rats, as compared with their serum, depended upon the severity of radiation sickness. ACTH inhibited the development of exudative inflammation and increased the death rate of irradiated animals.

43. BAGRAMYAN, E.R. Protective and therapeutic effect of hormones on the action of ionizing radiations on animals and humans. Problemy endokrinologii i gormonoterapii, v. 4, no. 2, 1958, 115-122. DNLM

A review is presented of the findings in the literature on the use of various hormone preparations as prophylactic and therapeutic substances in counteracting the effects of ionizing radiation on animals and man. The subject heading is biological sciences-radiobiology. Translation: JPRS: 1388-N report.

44. BAKARIC, V. Atomic, biological, and chemical defense in aviation. Vazduhoplovni glasnik, no. 6, 1957, 625-631.

Discussion covers ABC service.
Main subject headings are engineering-safety, radiological contamination--countermeasures, biological warfare agents--countermeasures, chemical warfare agents--countermeasures and aviation personnel--safety measures. Translation: JPRS: L-649-N.

45. BALMUKHANOV, S.B. Peculiarities of rabbits' reaction to irradiation depending upon the functional state of their nervous system. Meditsinskaya radiologiya, no. 7, 1959, 10-13. DNLM

Immediately after total irradiation there develops in rabbits a hyperglycemic reaction. The degree of the hyperglycemic reaction depends upon the initial level of blood sugar: in a high content of sugar there is seen a high hyperglycemic coefficient and vice versa. Inhibition of the central nervous system in urethane anesthesia leads to the intensification of the hyperglycemic reaction in the irradiated animals. A high blood sugar content (hyperglycemic coefficient 1:1.5-2) is noted immediately after the irradiation and this high level is maintained for 5-6 hours. In the irradiated rabbits the adrenaline effect intensifies: the hyperglycemia caused by the introduction of adrenaline is more pronounced and prolonged in the irradiated animals than in the controls. The degree of adrenaline hyperglycemia in animals subjected to irradiation during urethane anesthesia does not show any essential difference.

46. BALYTSKIY, K.P., and others. Radioactivity in the blood during development of Brown-Pearce carcinoma. IN: Akademiya nauk URSR, Kiyev. Dopovidi, no. 4, 1959, 451-453. Q60.A7 1959

Experiments were conducted on male rabbits with a Brown-Pearce carcinoma inoculated on the testicle. On the seventh day of development of rabbit carcinoma, an acute rise in beta radiation activity is noted in the blood, followed by a continuous and sharp fall up to the death of the animal. In rabbits with an undeveloped carcinoma the changes in the activity of radiation do not differ from the physiological fluctuations in the normal state. The investigation was carried out during different seasons, thus excluding seasonal effects. Since beta radiation activity in the organism is due chiefly to the activity of potassium, the data obtained are ascribed to the change in the blood potassium content. The observed drop in blood radioactivity after the seventh day of carcinoma development may be linked with deposition of potassium in the developing tumor, particularly since the radioactivity of the organs with carcinoma metastases were raised, as shown by supplementary studies. The experimental results agree with the observations showing that in 44 investigating patients with cancer of various location the radiation activity due to potassium was somewhat elevated.

47. BARAKINA, N.F. On the mechanism of cell destruction in hematopoietic organs of mammals, taking place under the influence of ionizing radiation. IN: Akademiya nauk SSSR. Doklady, v. 125, no. 5, 1959, 1141-3. AS262.S3663, v. 125

The reactions of spleen and bone marrow outside of the organism irradiated in vivo and in vitro, the ability of in vitro irradiated bone marrow cells to induce hematopoietic activities in irradiated animals, the development of destructive processes in in vivo irradiated spleen in relation to its functional condition, and the behavior of in vivo irradiated bone marrow cells injected into the spleen of non-irradiated mice were studied.

48. BARATOV, G.F. Mestnaya protivovozdushnaya oborona naseleniya v usloviyakh khimicheskogo, atomnogo i bakteriologicheskogo napadeniya (Local air defense of population under conditions of chemical, atomic, and bacteriogical attack). Kiyev, Gosudarstvennoye meditsinskoye izdatel'stvo URSR, 1959. 300 p. UA929.R9B3

A popular account of the means of aerial attacks. Principles of the structure and action of various kinds of nuclear, chemical, and bacteriological weapons. Means of defense. Describes medical first aid, prophylactic measures, quarantine, observation, disinfection, etc. Measures for eliminating the consequences of aerial attacks. This book can be used as a text-book for instructors of P.V.O. (antiair defense).

49. BARILA, K. War nerve gases. Civilna zastita, (Beograd) no. 1, Jan.-Feb, 1956, 2-3.

This article deals with war nerve gases, their effect on victims, first aid measures, protective measures, and recommendations of the author for organizing defense measures, particularly in densely populated areas. Translation: AF1100446.

50. BASKAKOV, V.P. The influence of penetrating radiation on the state of the higher nervous activity in animals. Meditsinskaya radiologiya, no. 8, 1959, 10-13. DNLM

The aim of the experiments, staged on white rats, was to divulge the difference in the changes of conditioned reflex activity of gravid, suckling and nongravid animals under the influence of penetrating radiation. After the elaborating of conditioned reflexes in rats they were given a single

whole-body irradiation in a dose of 250 r. An extinction of conditioned reflexes, and a change of conduct towards conditioned and unconditioned stimuli could be revealed. These changes appeared in gravid and suckling rats on the 1-2-3-5th day after the irradiation, in nongravid animals on the 12-13-14th day. Other differences were also observed.

51. BELGOVSKIY, M.L., and others. Nature of the dependence relation of the frequency of lethals arising at different stages of spermatogenesis on the dose of x-rays. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 4, 1959, 922-4. AS262.S3663, v. 124

A series of special experiments was carried out in order to find the dependence of the frequency of lethals arising in Drosophila melanogaster (Algerian and Ebreo) mature sperm, spermatides, and spermatogenesis on dose from 1000 to 4000 r. The tabulated data show that the frequency of lethals in spermatides induced by 4000 r increased by a factor of 1.4. However, in mature sperms the increased dosage induces a linear increase in the frequency of lethals.

52. BELOKONSKY, I.S. Changes in the higher nervous activity of rats during x-ray irradiation. Meditsinskaya radiologiya, no. 12, 1959, 11-16. DNLM

The author has undertaken studies of changes in the higher nervous activity of rats protected with chemical substances and of those not protected during x-ray irradiation. The author recommends a method of studying defense conditioned reflexes in rats. When the rats are irradiated with doses of 350-700 r. the conditioned and unconditioned defense reflexes become higher. When the irradiation is continued some animals display an inhibition of the higher nervous activity, whereas in others-the initial excitation (in doses of 200-400 r) repeatedly alternates with inhibition and new waves of excitation.

53. BELOKONSKIY, I., and others. Significance of oxidizing processes for early radiation reactions. Biofizika, v. 4, no. 2, 1959, 204-208. QH505.A1B53, v. 4

Changes in oxidizing processes during x-ray irradiation with doses up to 20000 r, are of a phase character. At the beginning of the exposure doses of 500-1000 r we observe the intensification of oxidizing processes; the further increase of the dose provokes the weakening of the oxidizing processes. With smaller doses there was a change in the investigated substances (succinodehydrase, cytochrome oxidase, organic peroxides, rH_2). It proves that the oxidizing process takes place in all the organs, while with increasing

doses different organs respond in a different way: in radio-sensitive organs the accumulation of oxidizing products goes on; in radio-resistant organs it decreases with succinodehydrase reactivation and, finally, the changes in relatively resistant organs are similar to those in radio-resistant organs, but in the limits of a statistic error. The prophylactic effect of certain known protective measures against (small doses) is connected with their ability to avert changes in oxidizing processes that are initiated during exposure. In other words, the organism reacts to the ionizing radiation as well as to other poisonous agents at the beginning by the excitation and, with dose increase, by protective retardation. But the primary excitation reaction does not provide a protective effect since the reaction is connected with the inhibition of dehydrizing activity.

54. BELONOZHKO, G.A., and others. Organizatsiya meditsinskogo obespecheniya pri massovykh porazheniyakh naseleniya (Medical aid program for the population attacked on a mass scale). Kiyev, 1957. 494 p.

Includes: (p.1) "Military Radioactive Substances" (BRV) Quotes some American literature as to methods of production, advantages and disadvantages".
(p. 3) "The Toxicology of Military Poisonous Substances" Explains effects. Gives classification then describes each class. Outlines countermeasures.
(p. 67) "General Information on the Biological weapon and Principles of Anti-Epidemic Defense of the Population". Gives characteristics and advantages BW and means of attack. Describes principle BW agents. Explains protective measures.
(p. 192) "The Organization of the MPVO (mestnaya protivo vozdushnaya oborona -- Local Antiaircraft Defense) Medical Service and Its Basic Tasks". Gives breakdown of posts and duties.
(p. 206) "Mobile Formations of the MPVO Medical Service:
(p. 380) Diagram of the MPVO organization. Describes service units of the Red Cross, Red Crescent, and Health Agencies. Main subject headings are Biological sciences--toxicology, biological warfare agents--countermeasures and chemical warfare agents--countermeasures. Translation: JPRS L-973-N.

55. BELOUSOV, A.P. Influence of ionizing radiation on hemolysis of erythrocytes. Vestnik rentgenologii i radiologii, v. 32, no. 3, 1957, 5-14.
RM845.V4, v. 32

The resistance of red blood cells to sapoine hemolysis in radiation disease of rabbits and in irradiation of blood was studied. Irradiation of rabbits with a dose of 700 r causes rapid disappearance of low-resistant red blood and the formation of red

blood cells resistant to chemical hemolysis. Accompanying lesions temporarily increase red blood cell decomposition. In rabbits irradiated with 1000 to 1300 r intensive red blood cells hemolysis began immediately and continued for up to 30 days. The appearance of resistant erythrocytes in the blood precedes active hemopoiesis and hemoglogin reparation. Increased resistance of red blood cells to sapoiene hemolysis is observed after blood loss and subsequent irradiation of the animals. Irradiation of the blood in vitro by large doses of ionizing radiation, in contrast to minor doses, lowers the resistance of red blood cells to chemical hemolysis. The discovered laws of red blood cell hemolysis under the ionizing radiation permit the developement of protective means against the lesion in question.

56. BELOUSOVA, O.I., and others. Use of vitamins B_{12} and B_6 in conditions of repeated action of x-rays. Meditsinskaya radiologiya, no. 10, 1959, 41-46. DNLM

The authors present the results on the efficacy of vitamins B_{12} and B_6 in subacute radiation sickness induced by daily irradiation of dogs in the dose of 20 r (the total dose-500 r). The experiments were staged on 35 dogs. The use of vitamins B_{12} and B_6 separately and combines did not prevent the disturbances of hematopoiesis. However the inhibition of hematopoiesis, especially erythropoiesis, in dogs receiving the vitamins was less marked. In the treated dogs there was observed a tendency to an earlier normalization of correlation of erythroblastic and myeloid elements in the bone marrow. The content of leukocytes and thrombocytes during 2-3 weeks after the cessation of the irradiation was higher than in the control animals. The combined administration of vitamin B_{12} and B_6 was the most effective.

57. BENEVOLENSKIY, V.N. Species specificity action of tissue hemolysin, forming in the liver of irradiated animals. Meditsinskaya radiologiya, no. 11, 1959, 47-51. DNLM

The paper deals with the problem of species specificity action of the hemolytic factor of the liver in irradiated animals. It is shown experimentally that the hemolytic factor does not possess a species specificity action. The species specificity of the hemolytic factor of the liver of irradiated mice, revealed in the works of A.S. Mochalina, is in reality nonspecific and depends upon the lesser resistance of erythrocytes of mice to the action of any tissue hemolysins.

58. BEZIN, G.I. Change of blood gases in dogs affected with polonium. Meditsinskaya radiologiya, no. 8, 1959, 60-66. DNLM

In conditions of an acute and subacute course of radiation sickness in dogs caused by Po^{210} the author studied the gases of the blood taken from the femoral vessels, while in a number of the dogs- of the blood outflowing from the kidneys. The velocity of circulation was assessed with the aid of the lobeline test. In the acute form starting from the second week the velocity of circulation slowed down, there were observed manifestations of circulatory hypoxia, and in a number of cases- hypoxemic hypoxia. In the subacute form the manifestations of circulatory hypoxia developed at the end of the first month; histotoxic hypoxia was notes less often. In the 1-2 week all dogs developed arterial hypocapnia; at the beginning of the first week the oxygen capacity index and the content of O_2 in the arterial blood increased. At the peak of the disease the content of O_2 in renal venous blood was sharply elevated.

59. BIBERGAL', A.V., and others. Atomnyy vzryv i nekotoryye voprosy protivoatomnoy zashchity (Atomic explosion and certain problems of atomic defense). Moskva, Medgiz, 1958. Microfilm slavic 1091.UF

The translated chapters (4-7) are entitled: Luminous radiation and protective measures; Residual radioactivity and decontamination; Radioactive radiation upon atomic explosions and protective measures, and Rules for the population in case of an atomic attack. Main subject headings are nuclear physics--radioactivity, atomic bomb explosions--radioactivity, and radioactivity-countermeasures. Translation: AF1255454

60. BIBERGAL' , A.V., and others. A γ-ray source (Gibe-800) for radiobiological experiments. Biofizika, v. 3, no. 1, 1958, 118-122. QH505.A1B53, v. 3

A γ-ray source (Gibe-800) is described, being the first one to allow the dose rate to be altered over a wide range and to permit the irradiation of biological subjects of various dimensions under optimal conditions. Complete safety of the installation is ensured, without the use of scarce materials and complicated, expensive equipment. The irradiation process is automatically controlled by means of a time relay, and the simplicity and reliability of the moving parts means that there is a high degree of reproducibility of experimental conditions. The installation has proved to be quite adequate in work on the experimental irradiation of various biological subjects and can be fully recommended for use in radiobiological research.

61. BIBERGAL', A.V., and others. Zashchita ot rentgenoykh i gamma luchey (Protection against roentgen and gamma rays). Moskva, Chap. 4-8, 1955. p. 94-226 and 233-237.

Explains penetration characteristics of the rays, principles of calculating protection, physical properties of cobalt, iridium, cesium, thulium, europium; describes protective materials, and protective structures; and gives methods for recording and controlling radiation. The subject heading is nuclear physics-instruments. Translation: JPRS 1726-N.

62. Biokhimiya, . v. 23, no. 1, 1958, 3-178.
QH301.A343, v. 23

Contents: Effect of hot solutions of sulfasalicylic acid on various proteins, by G.V. Deriz, M.N. Astrakhan, and L.F. Vaksman. Influence of thyroxin on carbohydrate metabolism in the brain in chronic experiments, by I. Potop. The amylolytic activity of the skin, by M.D. Kiverin. A study of peroxidase and catalase activity of Penicilliun chrysogenum Q-176 with reference to the accumulation of penicillin in the culture medium, by N.L. Mattison. The isolation of a new transglycosylase-type enzyme from liver, by A.N. Petrova. Quantitative determination of ammonia in plants containing tannins, by V.R. Popov. A study of the products of hydrolysis of the chagi complex acting principle using partition chromatography techniques, by E.V. Loviagina, A.N. Shivrina, and E.G. Platonova. Incorporation of phosphorus into nucleic acids, firmly and loosely protein-bound, in rats after burn, by P.D. Demidova. A compound complex isolated from the coelomic fluid of pupae of the silkworm (Bombyx mori), by N.M. Sisakian and M.K. Veinova. The action of chelating compounds on tissue storage and excretion from the living organism of radioyttrium, radiocerium and plutonium, by D.I. Semenov and I.P. Tregubenko. A contribution to the question of the mechanism of thiamine breakdown in the animal organism, by A.Ya. Rozanov. The biochemical mechanism of acetylcholine action, by T.M. Turpaev. Glutathione and ascorbic acid in tissues of rats with (for rest of abstract see TT, v. 1, p. 44) Main subject headings are Biological science--biochemistry, biochemistry--USSR, biochemistry--periodicals.

63. BLOKHINA, V.D. Contents of lipids in the microstructures of the liver cells in rabbits in acute radiation sickness. Meditsinskaya radiologiya, no. 1, 1959, 53-59.
DNLM

The contents of common lipids and phospholipids were studied in mitochondrias, microsomas of liver cells on the 1, 3, 5-6 day after x-ray irradiation in the dose of 1000 r. Small increase in the contents of common lipids and mitochondria was established, as well as more pronounced increase of common lipids in microsomas of the liver cells in rabbits 24 hours after irradiation of the animals. At the same time the

content of phospholipids in the cytoplasmatic microstructures of the liver cells did not undergo extensive changes in a given species of animals.

64. BLYUMENFEL'D, L.A., and others. Electron paramagnetic resonance spectra of biological objects. Effects of denaturation on the E.P.R. spectra of irradiated proteins. Biofizika, v. 3, no. 1, 1958, 87-91.
QH505.A1B53, v. 3

The effect of prior thermal denaturation on the electron paramagnetic resonance spectra of irradiated dry preparations of oxyhemoglobin, pepsin, ichthocol, and casein was studied. As a result of such denaturation, post-irradiation doublet splitting (the same as found with crystalline glycylglycine) is observed in the spectra. Denaturation increases the radiation-induced free radical concentrations by several hundred times. The observed effects are given a structural interpretation.

65. BOGOROV, V.G., and others. Concerning the possibility of disposing of radioactive waste in ocean trenches. IN: International civil defense. Bulletin of the international civil defense organization. Geneva, Apr. no. 46, 1959, 7.

The Soviet scientists claim that the disposal of radioactive waste packed in containers and dumped into deep sea trenches will constitute a real menace in the near future. Their conclusion is based on the analysis of the configuration of the floor of the trench, its hydrochemical and hydrological conditions, water circulation in the greatest depths, etc. A/Conf. 15/P/2058, 16 p. 2 fig., 3 tabl., biblio.

66. BOKHON, N.N. Dark adaptation in first-degree radiation disease. Voyenno-meditsinskiy zhurnal, no. 4, 1958, 15-18. RC970.V55 1958

Radiation disease changes the vitamin balance, and disturbs the metabolism and the life activity of certain organic systems, especially of the central nervous system. Dark adaptation of the eyes was examined in patients to be treated with x-rays. The data show that in all persons the adaptation curve was within the zone of the norm. This does not exclude an eventual reduction of the adaptation dependent on the degree of radiation disease. In the first degree of radiation disease, the state of dark adaptation as a rule does not change.

67. BRODSKAYA, YE.A., and others. Treatment of dysentery in experimental radiation sickness. Meditsinskaya radiologiya, no. 1, 1959, 82. DNLM

68. BRODSKIY, V.YA., and others. Effects of ionizing radiation on the content of free nucleotides and nucleosides of marrow. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 2, 1959, 440-3.
AS262.S3663, v. 124

Experiments with 73 6- to 8-week old mice weighing 18 to 22 g and exposed to 700 r at 22 cm distance (with the whole-body, right side, lower back, and screened lower back extremities) showed that the number of nucleotides drops after 6 hours following direct or screened exposures. Almost identical results were observed in local and nonlocal irradiations. It was concluded that while destructive processes and disturbances in cell division depend on local irradiation, the drop in the number of free nucleotides and nucleosides is a factor of nonlocal effects.

69. BRODSKIY, V.YA., and others. Ultra-violet microscopy and cytophotometry of normal and x-irradiated bone marrows. Biofizika, v. 3, no. 1, 1958, 92-100.
QH505.A1B53, v. 3

The changes induced by radiation in nucleic acid and nucleotide content of nuclei were studied in bone marrow cells from mice after exposure to 700 r x-radiation. Visual studies were made on marrow smears. Characteristics noted included cell and nuclear shape and dimensions, intensity of cytoplasm, and nuclear staining using both basic and acid stains. Unstained cells or tissue sections were studied under the ultraviolet microscope, the images being produced by ultraviolet absorption of the cell materials. Reduced ultraviolet absorption was observed within a few minutes of irradiation, the effect growing stronger with the passage of time. Quantitative cytochemical analysis was made for nucleic acids and nucleotides in the irradiated cells. An analysis of results led to the conclusion that radiation damage to cells is probably related to disturbance in nucleic acid metabolism, which causes a decrease in nucleotide content, and not to reduction in amounts of nucleic acid.

70. BRUSOV, I.I., and others. Protivovozdushnaya i protivokhimicheskaya zashchita (Antiair and antigas defense). Moskva, 1952. 112 p. illus.
UF625.B76

Contents:
Contemporary ways of attack and hitting;
Designation and task of the local antiaircraft defense service;
Methods of the defense of people from hitting during the bombardment;

War gases of foreign armies;
Individual remedies of the antichemical defense;
Assistance to the victims before medical assistance;
Putting out the incendiary aerial bomb;
Fire preventive measures and Guard of social order.
The 51 figures show; bombs, shelters (inside and outside); blackout methods; decontamination equipment (filters-sprays); gas masks; anti-radiation suits; mantles; first aid; etc.

71. BUDNITSKAYA, E.V., and others. Fermentative oxidation of lipids in plants exposed to ionizing radiation. IN: Akademiya nauk SSSR. Doklady, v. 126, no. 1, 1959, 195-7. AS262.S3663, v. 126

Effects of x radiation on alternations in free lipid composition of 10- and 14-day sprouts of Latvian bean and Viner barley were studied, and fermentive nature of peroxide formation in plants was investigated. The tabulated data show strong changes in the plants irradiated with 1000 to 10,000r. It was found that the radioinduced fermentive oxidation in plant lipids increases the content of peroxides which possess toxic properties and specific physiological properties. Further studies should be made of peroxides formed during irradiation of plants and their role and physiological properties.

72. BUGLOV, YE.D., and others. Primary toxicity in acute radiation sickness. Meditsinskaya radiologiya, no. 8, 1959, 37-41. DNLM

Data presented in the article testify to the fact that in the first hours following irradiation there appear in the blood and organs toxic substances, which play a definite role in the pathogenesis of radiation sickness. Transfusion of blood of irradiated animals provokes in the recipient shifts in the morphological and biochemical composition of the blood, which are similar to those occurring after the action of low doses of irradiation. Upon the introduction of spleen and liver extracts of irradiated animals the toxic effect is manifested without the diminution of the leukocyte count. No hypotensive substances were revealed. The blood composition changes mainly depend upon the action on the hematopoietic organs, in view of the fact that the changes observed are stable and develop in definite periods. The toxicity effect is manifested more regularly in irradiation of the animals with high doses.

73. BUKHALOVSKIY, I.N. Changes of certain ECG indices in acute radiation sickness induced by γ-radiation and x-ray irradiation. Meditsinskaya radiologiya, no. 9, 1959, 24-29.
DNLM

Changes of the electrocardiogram in radiation sickness have been described by a number of authors. However, they are almost exclusively related with gamma- and x-ray affections. In reference with the above the majority of investigators are of the opinion that the electrocardiogram in radiation sickness changes only in cases of severe affection, as a result of which inadequate attention is paid to this method of investigation in the management of radiation sickness patients. Data obtained by the author show that this opinion is erroneous. These data concern the relatively unknown problem on the disturbances of the myocardial function in radiation injuries of isotope nature. Although the latter are generally analogous with other radiation affections, they are characterized by a number of specific features.

74. BURYKINA, L.N., and others. Remote sequelae of affection with low doses of radioactive substances in chronic experiments. Meditsinskaya radiologiya, no. 3, 1959, 3-6.
DNLM

Survey based on a number of investigations conducted for the study of biological action of low doses of radioactive substances on animal organisms. The materials of this work were reported at the Geneva Conference on Peaceful Uses of Atomic Energy in 1958.

75. BUTOMO, N.V. Permeability changes of vascular barriers in the action of ionizing radiation on the organism. Meditsinskaya radiologiya, no. 10, 1959, 9-13.
DNLM

In experiments on rabbits the author studied the permeability of vessels of the hemato-ophthalmic barrier after the method of Amsler-Hubber, while in experiments on dogs-according to Landis, following total irradiation of animals. There was seen a considerable increase of vascular permeability in respect to blood proteins at early periods after irradiation. Consequently, throughout the course of radiation sickness there were noted fluctuations of the permeability level, prevalently towards a rise.

76. BUZINI, P.A. Effect of x-rays on phagocytosis. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 28, no. 7, 1957, 1052-3. QR1.Z5, v. 28

Results are reported from studies on the changes in the phagocytic activity of leukocytes occurring during generalized exposure to various doses of x radiation. Observations made both in vivo and in vitro on cats, rabbits, guinea pigs, and mice indicate that irradiation may either suppress or stimulate phagocytosis, depending on the dose. Reaction mechanisms involved are discussed.

77. BYKHOVSKIY, A.V. A review of S.M. Gorodinsky and G.M. Parkhomenko's book "Labor hygiene when working with radioactive isotopes." Meditsinskaya radiologiya, no. 6, 1959, 90-91. DNLM

78. CHAIKOVSKAYA, M.YA., and others. Complex treatment of radiation sickness in blood loss. Vestnik rentgenologii i radiologii, v. 34, no. 3, 1959, 47-52.
RM845.V4, v. 34

Development is reported of a combined method of treatment of radiation sickness complicated by blood loss. Experiments were carried out on dogs irradiated 500 r. Twenty-four dogs weighing from 14 to 20 kg were under observation (18 experimental and 6 control). Various blood substitutes were used (Belenky's serum, parenterin, L-103 preparation) together with antibodies (biomycin, streptomycin) and vitamins (C, B_{12}, P, and folic acid). The combined method of therapy was effective in the treatment of radiation sickness complicated by blood loss. The course of radiation sickness in the treated animals was a mild and average severity, as judged by the manifestations of clincal symptoms and by the duration of the disease. The morphological changes in the bone marrow and in the peripheral blood, as well as the biochemical changes in the blood serum, were of average severity, and short duration. Seventeen of the treated 18 animals remained alive. Blood substitutes made of heterogenic blood should find widespread use in the treatment of radiation sickness complicated by blood loss. Parenterin and L-103 preparation were the most effective in the treatment of radiation sickness in our experiments. Belenky's serum gave the worst results. Folic acid coupled with vitamin B_{12} promoted and accelerated the regeneration of the red blood cells in the irradiated animals. Leukogen gives a good effect in the treatment of leukopenia resulting from irradiation.

79. CHANG, CHIEN-CHING. After an atomic bomb explosion. Chienfang chün hua-pao, May 1956.

This article covers military maneuvers at sea under the simulated conditions of an atomic attack. Except in the initial stages of the attack, (the blast), all of the photos show men in protective clothing. All antiaircraft stations are manned with personnel in antiradiation suits. Other photos show the deck and cannons being decontaminated by the use of water and /or chemicals.

80. CHANG, FU LIEN. Views of Chinese scientists on US bacterial warfare. Chinese medical journal, v. 70, Dec. 1952.
DNLM

The author and his collaborators state that the USA has practiced bacterial warfare in Korea and Northeast China. The author is the President of the Chinese Medical Association.

81. CHAO, CHUNG-YAO. Yuan tzu neng te yuan li ho ying yung (Principles and applications on atomic energy). Peking, Science Press, 1956. 234 p. QC776.C48

The first eight chapters of this book are concerned with the nature and construction of atoms. Initial information concerns electrons and molecules, molecular structure, natural radiation phenomena, developments of atomic energy, artificial radiation, instrumentation of accelerators and detectors. This is followed by information on atomic energy as applied to dynamics and with special emphasis on isotopes and isomers. Two other chapters are devoted to atomic weapons and concerned mainly with the structure of atomic and hydrogen bombs, shock waves, light radiation, penetrating radiation, radiation contamination, etc.; the effects and means of prevention. The last chapter deals entirely with the effects of atomic radiation on man, the means of prevention, the ways of detection. There are two appendices; one of the periodic chart and the other of frequently used radioactive isotopes. There is also a list of phonetisized names and a subject index. This book is technical with references to domestic and foreign research. Included are photos and illustrations.

82. CHEKATILO, G.A. Influence or irradiation of the host on the biological properties of staphylococcus. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 5, 1958, 80-82. QR1.Z5, v. 29

The possibility of increasing the pathogenicity of Staphylococcus albus artificially introduced into irradiated guinea-pigs was investigated. The transition of the saprophytic Staph. albus to a more pathogenic form while vegetating in an irradiated animal was established. The variation of staphylococci in an irradiated animal is linked with the intermediate influence of irradiation on organisms by means of the interaction of the latter with the irradiated host.

83. CH'EN, P'EI-FU, and others. Anti-chemical corps. Fan Hua-Hsueh Ping, 1957, 3-34.

Atomic, chemical and bacteriological weapons are discussed along with ways and means of coping with them. Main subject headings are Biological sciences--pathology, chemical warfare agents--countermeasures and biological warfare agents--countermeasures. Translation: ACSI H-1613.

84. CHENG, HSI-MING. Fang she hua hsüeh te jen shih (An understanding of radio chemistry). Hsin chung kuo lien ho ch'u pan she, Shanghai, 1954. 139 p.
F480.C44

This is a general introduction to the study of radio chemistry. It begins with a brief history and an explanation of terminology. Following this the characteristics of radiation are presented with an emphasis on instrumentation and alpha, beta, and gamma forms of radiation. Artificial radiation information including isotopes isomers, K capture electrons, and nuclear isomers. The characteristics of these structures include Mev, rate of decomposition, half life, etc.

85. CHERTKOV, I.L. Properidine system in radiation sickness. Meditsinskaya radiologiya, no. 10, 1959, 75-78.
DNLM

86. CHESNOKOVA, A.P. Study of nervous mechanisms of the higher nervous activity disturbance of white rats in the early stage of ontogenesis in the action of a single dose of ionizing radiation. Meditsinskaya radiologiya, no. 4, 1959, 16-21. DNLM

The author studied the higher nervous activity disturbance of white rats, subjected to radiocobalt irradiation (50 r), in the first day of life and at the age of 18-20 days. The results were compared with those of control animals of the same age. In all animals irradiated in the early stage of ontogenesis there is seen a decrease in the process of excitation and inhibition, as well as disturbance of the circuit function of the cerebral cortex in animals irradiated in the first day of life. No disturbances of the general development were observed in animals irradiated in the early stages of ontogenesis as compared with the control group. A leukocytic reaction of the peripheral blood to irradiation was noted in animals irradiated at the age of 18-20 days. The irradiation of newborn animals did not effect any change in the leukocyte count.

87. CHIANG, CHIEN-AN. Business of innovation. Chieh-fang chün hua-pao, 16 Aug 1958, 6-7.

This article is concerned with experiments made by the Chemical Corps near Nanking. The object of the experiment was to develop and test new ways to facilitate movement in roadless areas. Photos show men in anti-radiation suits transporting gas and nephalm through water and rice fields.

88. CHOCHIA, K.N. Angiography in acute radiation sickness. Vestnik rentgenologii i radiologii, v. 33, no. 4, 1958, 60-63. RM845.V4, v.33

The author has carried out a roentgenological study of the blood vessels of the pelvis, extremities, and abdominal internal organs on 21 dogs and 26 rabbits. The majority of experiments on dogs were performed under general anesthesia. In the study of extremities the contrast media were injected into the femoral artery by the retrograde method. The vessels of internal organs were filled with contrast medium by translumbar puncture of abdominal aorta (in dogs), or by injection into the pulmonary circulation (in rabbits). The angiograms were taken with the aid of a special apparatus designed by the author. Considerable increase of permeability of the blood vessels for contrast media was noted during the acute stage of radiation sickness. During that period the lumen of the arteries of extremities and pelvis was found to be greatly constricted, while that of the main arteries of abdominal cavity was, on the contrary, dilated. This dilatation was most pronounced in rabbits.

89. CHOCHIA, K.N., and others. Lesions of the teeth and necrosis of the mandible as a complication of radiation therapy of cancer on the oral cavity. Vestnik rentgenologii i radiologii, v. 33, no. 3, 1958, 32-37. RM845.V4, v. 33

The authors studied 265 case histories of patients subjected to radiation treatment during the period covering the years of 1945 to 1955. This included 201 cases of cancer of the lower lip, 49 cancer of the tongue, and 15 cancer of the mucous membrane of the cheek. Almost all the patients noted dryness of the mouth for 3 to 4 months. The teeth gradually became somewhat dull and acquired a grayish or blackish tint. In may cases they showed a gradual decomposition. Necrosis of the mandible developed in 6 patients, 8 months to 8 years following the treatment. In development of necrosis the total dose is not as important as repeated irradiations with comparatively short intervals. An overdose in introduction of needles to the alveolar edge of the jaws, the presence of pyorrhea and carious teeth (as a source of infection), trauma of the jaw (due to extraction of teeth) are even of greater significance during irradiation.

90. CHOCHIA, K.N. Tissue transplanatation in radiation leukopenia. Vestnik rentgenologii i radiologii. v. 33, no. 4, 1958, 79-80. RM845.V4, v. 33

91. CHOGOSHVILI, N.E., and others. The condition of bone marrow and peripheral blood in radium therapy of malignant neoplasms. Vestnik rentgenologii i radiologii, v. 33, no. 4, 1958, 84-86. TM845.V4, v. 33

92. CHU, KUANG. What aspects of artillery troop training should be emphasized under atomic warfare conditions. Chieh-fang-chun Pao, 18 May 1958, 3.

Translation: JPRS 764-D.

93. CHUKHLOVIN, B.A. Influence of x-ray irradiation on the course of acute salmonellosis. Meditsinskaya radiologiya, no. 11, 1959, 57-59. DNLM

On a series of experiments staged on white mice the author studied the influence of ionizing radiation on the course of acute salmonellosis. Data of bacteriological investigation and the results of clinical studies testify that irradiation of the organism at any period after infection aggravates the course of the latter. It is manifested not only by the deterioration of external symptoms of the disease but also by the increase of the degree and duration of the generalization of the affection and by the prolongation of the time of clearance of pathogenic microbes from the organism. The course of salmonellosis in mice is most unfavorable when the animals are subjected to the irradiation in the first 10-15 days following infection, i.e. in the incubation stage and at the peak of the disease.

94. Civil Defense in the USSR, 1957-1959, 30 Nov 1959 Soviet open sources. Compiled in AID Report No. AF1256254.

This comprehensive report represents a delineation of the scope of the Soviet civil defense and a description of its organizational set-up and its implementation. It also discloses new tendencies, changes, and achievements in the civil defense of the USSR. There are 18 figures showing civilian defense training, (eight norms for "Ready for PVO" First Class training program), shelters, hikers wearing gas masks, air filtering and ventilation systems, log dugouts, etc.

95. Civil defense training program in the USSR. IN: International civil defense. Bulletin of the international civil defense organization, Geneva, Oct., no. 52, 1959, 2-3.

Gives information concerning the modern means of warfare-CBR. Individual defense means, collective defense means, fire prevention methods and extinction of incendiary weapons and fires, rules for behavior of the population upon the announcement of an alert, civil defense signals, first aid, liquidation of the results of air attack, and provision of veterinary aid are some topics explained in this article.

96. Congressional committee hearing on CBR. Armed forces chemical journal, no. 4, 1959, 18. UG447.A75 1959

Chairman Brooks stated that: "The United States and its allies face a very real very grave threat from chemical, biological, and radiological weapons which the Soviet Union is capable of using against us either in connection with a nuclear attack or in limited war or convert operations." He further stated that the Soviets effort in this regard have been extensive. We could succumb to a Soviet attack of this nature. The Soviet Union will not refrain from using such weapons to their advantage. We are not likely to create a deterrent capable of discouraging the Soviet employment of such agents in any future conflict. This press release dated 22 June 1959 followed an appearance of Generals Creasy and Stubbs before the Congressional committee.

97. DARENSKAYA, N., and others. Dozy ioniziruyushchikh izluchenly (Ionizing radiation doses). IN: Bol'shaya meditsinskaya entsiklopediya, v. 9, 1959. p. 689-698. R125.B65, v. 9

A brief review of the various radiation doses, based both on Soviet and foreign literature. Describes biological radiation doses, effect on public health following nuclear weapon tests, per cents of radiation doses causing lethal effects (minimum and maximum). Physical radiation doses are also described. Translation: AF 1255958.

98. DELITSYNA, N.S. Investigation of the receptors of the irradiated areas of human body during radiation therapy. Meditsinskaya radiologiya, no. 7, 1959, 73-76. DNLM

The investigations were carried out on persons subjected to the local action of x-rays for the treatment of various diseases. At the time of the electroencephalographic recording the author performed tactile irritation of different areas of the body before and after the irradiation. Immediately following the

irradiation there could be registered a change in the reaction of the cerebral cortex to tactile irritation of the irradiated area. This testified to the presence of changes in the peripheral neuro receptor apparatuses of those areas of the body which were subjected to the direct action of the radiation factor. The change of the functional state of the central nervous sysemm associated with the effect of local irradiation is also testified by the fact, that the reaction to tactile irritation of regions remote from the site of the irradiation changes, although to a considerably lesser degree.

99. DELITSYNA, N.S. Receptive capacity of irradiated areas of the body in experiments on animals. Meditsinskaya radiologiya, no. 8, 1959, 17-20. DNLM

The investigations were conducted on rabbits by subjecting one of the extremities to the action of x-rays (500-5,000 r). Immediately after the irradiation there are observed changes in the reaction of the great hemispheres of the brain (the method of electroencephalography) to tactile irritation of the irradiated region. This testifies to the presence of changes in the peripheral receptors of regions of the organism directly subjected to the action of the radiation factor. The change of motor chronaxia of the irradiated as well as the nonirradiated contralateral extremity (experiments on rabbits) is also illustrative of changes of subordination (central) influences on the periphery). Local irradiation of rabbit's extremity (5,000 r) provoked the development of an ulcerous affection not only on the irradiated extremity, but on the symmetrical area of the nonirradiated contralateral extremity as well. The development of the affection according to a segmentary type apparently, testifies to the fact that a nervous mechanism lies at the basis of the process. In 2 cases out of 10 there was observed a consecutive development of ulcers on all 4 extremities (only one of them was irradiated).

100. DEMIN, N.N., and others. On the role of nutritional factors in radiation sickness. Meditsinskaya radiologiya, no. 3, 1959, 66-70. DNLM

101. Development of biology. Uspekhi sovremennoy biologii, v. 47, no. 2, 1959, 133-136. QH301.U7, v. 47

The article discusses how the study of biology is necessary in the new nuclear age.

102. DINERSTEIN, H.S. The Soviet military posture as a reflection of Soviet strategy. Rand Corp., Santa Monica, Calif., 24 Mar 58, 22 p. (Research mem. no. RM-2102) Q180.A1R36 1958, RM-2102

An attempt to determine the extent to which Soviet armed forces reflect the changes in Soviet strategy conceptions in view of the advent of nuclear weapons.

103. DOLBNIN, T. Bacteriological weapon and protection from it. Voyennyye znaniya, no. 1, 1959, 28-29. U4.V874 1959

In the core of the bacteriological weapon are pathogenic microbes, exciters of contagious diseases. The hotbed (breeding ground) of bacteriological affection. Symptoms of the contagious diseases. Quarantine is one of the most important measures to eliminate consequences of a bacteriological attack. Extraordinary prophylaxis is realized by the application of antibiotics and other medical-prophylactic means. The examination of the complex "Ready for the Antiair Defense" carried out individually is supposed to be the confirmation of the populations know how and readiness for the defense against the means of mass destruction. Photos show men and women dressed in gas masks and protective clothing practicing defense under conditions of bacterial warfare.

104. DOMSHLAK, M.P., and others. Estimation of minor influence exercised by radiation upon the human organism. Atomnaya energiya, v. 3, no. 7, 1957, 36-40. QC770.A83, v. 3

Paper deals with promising indications for latent changes in tissues occurring at a later date.

105. DOMSHLAK, M.P., and others. Investigations material to the specificity of responses of an organism to irradiation. Vestnik rentgenologii i radiologii, v. 32, no. 2, 1957, 3-10. RM845.V4, v. 32

An attempt is made to show the significance of quantitative analysis for investigating the problem and to appraise the influence exerted by the space distribution and time of irradiation on the specific peculiarities of an organism's responses to irradiation. Comparison is made between experimental findings on the efficiency of similarly timed internal and external irradiations. Clinical and physiological observations are cited referring to peculiarities of responses in the central nervous system, depending on whether the influence of penetrating irradiation on this system is direct or indirect. Experimental data characterize the dependence of the response on the irradiated area.

106. DOMSHLAK, M.P., and others. Tasks of the experimental technique of radiation effects and certain radiobiological data. Meditsinskaya radiologiya, no. 12, 1959, 3-11. DNLM

The paper deals with various physical and biological factors which should be considered when assessing the results of radiobiological experiments. The importance of spacial radiation distribution in the effect of the injurious action is discussed. Data are presented on the relative biological effectiveness of roentgen and Co^{60} gamma-radiation. The significance of the "time factor" during the radiation effect in a wide range of doses for cases of local and total irradiation is demonstrated. The article also contains data illustrating the importance of individual sensitivity for the comprehension of the effect of radiation. The influence of sex, body weight, and the season on the final effect of irradiation is emphasized. The authors give an interpretation of the dose curve of the injurious action of radiation and characterize the possible influences of physical and biological factors in respect to different dose levels. The perspectives for further conduction of investigations of the principal radiobiological regularities are outlined.

107. DOMSHLAK, M.P. Use of radiations of large energies for curative purposes. Meditsinskaya radiologiya, no. 8, 1959, 3-10. DNLM

108. DRASHIL, V. and others. How much radioactive dust falls on our territory. Referativnyy zhurnal. Fizika, no. 4, 1958, p. 29, abst. 7717. QC1.A419633 1958

Russian abstract of the Czech work Jake mnozstvi radioaktiniho prachu dopada na nase uzemi, by V. Drasil, and others published in Vestnik C.S.A.V. v. 66, no. 3-4 1957, 172-173. To determine the amount of Sr^{90} falling as a result of the experimental tests on atomic and nuclear bombs, the following method was used. A glass vessel measuring 20 x 20 x 35 cm, on the bottom of which there was a layer of water approximately 0.5 cm thick, was left in the air for a month to capture the dust. The water was evaporated and the precipitate coated on a plate to measure its activity. The decay of the material during the month was computed. Measurements of the activity gave 69 pulses per minute above background. These measurements give the following results: in the city of Brno there fell during 30 days a dust with activity of 5.3 microcurie per square km (measurement of 1957). Subsequent analysis has shown that the dust contains considerable doses of K (14% of the entire activity is caused by the potassium).

109. DUBININ, M., and others. Dangers of biological and chemical weapons. Mezhdunarodnaya zhizn', no. 11, 1959, 61-65. D410.M4 1959

The fifth international conference in Pugwash (Canada), in August 1959, on the problems of potential dangers of biological and chemical weapons. The authors of this article were members of the conference. Its main problems and conclusions: Biological weapon: microbes, viruses, and their toxic products can be very effective, and dispersed from aircrafts or submarines. Biological weapons have a tactical and strategic meaning. Chemical weapons: production of war gases is based on the chemical industry. All members of the conference condemned the application of biological and chemical means of warfare. The Soviet Union has worked for a long time to achieve a prohibition (a ban) of all weapons of mass destruction.

110. DUBININ, N.P., and others. Mechanisms of protection against genetic effects of radiation. IN: Akademiya nauk SSSR. Doklady, v. 126, no. 2, 1959, 400-403. AS262.S3663, v. 126

Experiments made for determining the protective effects of hyposulfite show that hyposulfite either protects against the HO_2^- radical, the radical does not play an important part in induced ionizing radiogenetic effects, or there exists a certain bond between the ionized and normal state of oxygen molecules with variation in hyposulfite photodynamic effects and x radiation. The experiments on the protective effects of thiourea show that thiourea does not protect chromosomes against photodynamic effects. It was also observed that hyposulfite acts as a luminescence damper. It is known that the luminescence damping is realted and follows the process of photoreaction retardation. Preparations of KI, KBr, and hydrochinon were used as protective substances against photodynamic effects. Experiments were carried out with the rivanol and methylene blue. The comparisons of the protective effects of these substances in biological experiments followed the following order: hydrochinon hyposulfite I ion Br ion. Data also showed that those materials capable of protecting against photodynamic effects were not capable of protecting against radiation and vice versa (thiourea). The effects of photodynamic effect (rivanol) and x radiation on the union and nigell stability in chromosome rebuilding are tabulated.

111. DUBININ, N.P. Quantitative relationship between the dose of ionizing radiation and their possible harmful effect on heredity in man. IN: Akademiya nauk SSSR. Doklady, v. 122, no. 4, 1958, 713-715.
AS262.S3663, v. 122

Analysis is made of the genetic effects of radiation of man based on the new data produced by G.G. Tinyakov (Akademiya nauk SSSR. Doklady, v. 122, 1958;598) which showed that the frequency of chromosome reorganization in ape sperm cells exposed to 400 r is considerably higher than that obtained in experiments with mice (on the 11th day after irradiation the number of nuclei damaged by chromosome reorganization in apes was 28.66% and in mice 11.12%).

112. D'YACHENKO, M.N. New methods for monitoring ionizing radiation. Meditsinskaya radiologiya, v. 3, no. 4, 1958, 75-78. DNLM

This article was sent from the Physical-Technical Department of the Kharkhov, Medical Radiological Institute.

113. DYACHENKO, S.S. Development of medical microbiology in the Ukraine during the years of Soviet rule. Vrachebnoye delo, no. 1, 1958, 11-18. R91.V7 1958

Translation: JPRS 442-DC.

114. DYURCHEK, K., and others. X-ray irradiation doses to which the patients and the medical personnel are exposed in cardiac catheterization. Meditsinskaya radiologiya, no. 10, 1959, 66-70. DNLM

X-ray doses were determined to which the patients and the medical personnel were exposed in cardiac catheterization. The authors studied the distribution of secondary irradiation around the x-ray unit with the aid of the method involving curves of equal intensity and also investigated the dependence of the irradiation level on various factors, i.e. the x-ray tube voltage, the field area on the screen, external filtration and the patient's position. A conclusion was arrived at that cardiac catheterization cannot be regarded as the usual type of roentgenological examination due to the high x-ray irradiation doses to which the patient and the medical personnel are exposed; the simplest methods of reducing these doses are described.

115. DZHIKIDZE, E.K., and others. Influence of low doses of ionizing radiation on the course of dysenteric infection. Meditsinskaya radiologiya, no. 4, 1959, 44-50. DNLM

The present issue deals with studies of the influence of chronic action of low doses of x-rays on the course of latent dysentric infection. Monkeys-carriers of dysenteric bacteria, for a long period of time were subjected to x-ray irradiation in the dose of 5-7 r daily (until their death). The animals died in 7-14 months, the total dose being 785-2060 r. The cause of the animal's death was due to infectious complications: activization of latent dysentery in macaco, and pneumonia and laryngitis in baboons. The author has divulged marked species specific differences in the sensitivity to dysenteric infection. Macaco monkeys perished from dysentery, which developed on the ground of radiation sickness; in baboons no clinical or pathomorphological manifestations of dysentery were observed.

116. Effects of penetrating radiation. Voyenno-meditsinskiy zhurnal, no. 9, 1955, 13-20. RC970.V55 1955

Compiled from two papers. One of the papers deals with the injuries to the organ of sight affected by penetrating radiation, the other with the effect of radiant energy upon the penetrability of human tissues. Summary: AF1017796.

117. EL'BERT, B.YA. Prakticheskoye posobiye po meditsinskoy mikrobiologii i sanitarno-bakteriologicheskim metodam issledovanii (Practical method for medical microbiology and sanitary bacteriology methods and analysis). Minsk, 1957. p. 313-319. QR46.E48

Chapter translated is, "Analysis of the Air for Bacterial Contamination". Information concerning the use of the D'aykonov instrument (Krotkov) and Matveyev apparatus for measuring the bacterial content of the air. Photos of each device are shown. Translation: JPRS L-80-D.

118. EL'YASHEVICH, G.P. Action of mercamin on the liver (experimental morphological research). Meditsinskaya radiologiya, no. 7, 1959, 70-73. DNLM

Numerous investigations have established the β-mercaptoethylamine (mercamin, cysteinamine) upon prophylactic administration (150 mg/kg) before the irradiation protects the organism from radiation injuries. Along with this, it is known that the preparation is toxic. In experiments staged on mice the author studied the action of mercamin on the liver, as well as the survival of the irradiated animals. Altogether 270 mice were

used. The preparation introduced in the above dose to non-irradiated animals provoked fatty degeneration of the liver. The administration of the preparation before the irradiation of animals also leads to fatty degeneration of the liver. This process is reversible, however, in animals, given the above preparation before the irradiation, the structure of the liver normalizes at a later date (on the 31st day), whereas the hepatic structure in the non-irradiated animals normalizes on the 20th day following the introduction of the preparation. The protective effect of β-mercaptoethylamine has been substantiated in the experiments.

119. EMAYKINA, V.P., and others. Data on the influence of low barometric pressure on the course of influenza in irradiated mice. Meditsinskaya radiologiya, no. 1, 1959, 82. DNLM

120. EMELIN, V. Anti-atomic security for troops (Atomic weapons and anti-atomic defense). Krasnaya zvevda, 25 May 1955, 3. U4.K78 1955

Author, a candidate of military sciences, states that in case of a new world war by imperialist agressors, the Soviets must be prepared to defend themselves against atomic attack. He gives the strength of atom bombs. He describes how the troops should train to protect themselves from radioactive fall-out, deactivation, etc. One diagram shows the power of devastation by use of an atom bomb.

121. ERLEKSOVA, YE.V. Peculiarities of distribution and excretion of polonium in animals subjected to unitiol administration. Meditsinskaya radiologiya, no. 8, 1959, 54-60. DNLM

The paper deals with the study of the action of unitiol on the process of distribution and excretion of polonium from the organism, as well as the character of changes in the organs of white rats in the employment of this preparation. On the basis of autoradiographic and histological investigations it has been established that early administration of unitiol accelerates and increases quantitatively the excretion of polonium from the organism.

122. EYDUS, L.KH., and others. The mechanism of the oxygen effect in radiobiology. Biofizika, v. 3, 1958, 197-201. QH505.A1B53, v. 3

A mechanism by which some of the energy from ionizing radiations absorbed by living objects is conserved in long-lived excited electronic states in themacromolecules is proposed. In such a mechanism, oxygen acts by reacting with the irradiated system, as well as by participating in the radiolysis of water. The oxygen damage depends on the dose, being due to the latent

damage stored in the object. The protein myosin was used for demonstration. The data indicated that oxygen reacts with excited myosin molecules and inactivates them. This mechanism is not clear.

123. EYDUS, L.KH., and others. Study of the mechanism of the after-effect of irradiation in proteins. Biofizika, v. 4, no. 2, 1959, 215-223. QH505.A1B53, v. 4

The development of the irradiation after-effect was observed in irradiated myosin solutions. The magnitude of this after-effect, in the portion of the protein which remains active after irradiation, is in proportion to the degree of direct inactivation of the ferment under the ray. The study of the kinetics of thermoinactivation of irradiated myosin solutions permits to conclude that after-effect reaction is of an intramollecular character. The activation energy of the after-effect reaction (post-irradiation thermoinactivation) in irradiated myosin differs sharply from the activation energy of thermoinactivation in non-irradiated proteins and does not depend on dose of the irradiation. The study of the literary data, referring to the irradiation after-effect in trypsin, pepsin and in egg-albumin, demonstrates the similarity of the after-effect mechanisms in various irradiated proteins. The possibility of different explanations of the mentioned mechanism is discussed on the basis of the obtained experimental data. The arising of a long-living excitation state of the protein molecule, with a low activation barrier of thermoinactivation, in response to irradiation, is in agreement with the experimental findings. A suggestion is expressed in regard to the possible role of the structured water in the mechanism of the irradiation inactivation of ferments.

124. FALEYEVA, Z.N. Variation in the picture of the peripheral blood in mice subjected to total irradiation under spleen screening and under its local irradiation. IN: Akademiya nauk SSSR. Doklady, v. 122, no. 1, 1958, 65-68. AS262.S3663, v. 122

A relatively long period of leukopenia followed by restoration to normal was observed in cases of animals in effectiveness of the two types of radiation in multiple hit events are determined by differences in ionization and in the size of groups of ion pairs formed.

125. Fang, K'ung-chun, Air Defense Forces, Pei-ching, Oct 1957.

This book gives a breakdown of the Air Defense Forces of the PLA. This is a new army unit consisting of many troop units which are coordinated as AF Interceptor Unit, Air Intelligence Unit, Signal Troop Unit, Signal Troop Unit, AA Unit, and various other troop units. Too, there are several specialized and furthermore they

also have a Chemical Defense Unit, an Engineering Unit and a Radio Unit whose principal responsibilities are the defense against atomic and chemical weapons. The Air Defense Guided Missiles Unit is equipped with the newest types of missiles that can destroy even other missiles carrying nuclear warheads. The book stresses the cooperation that is necessary between the various units and points out their objectives and responsibilties.

126. FANG, SHIH-SHAN. Bacteriological warfare. Chinese medical journal, v. 70, July-August, 1952, 329-332.
DNLM

Author is the General Secretary of the Chinese Medical Association, Peking, China. Claims are made in this article by the author that the USA practiced bacteriological warfare in Korea and in North-east China.

127. FARBER, V.B. Classification of radiation affections. Meditsinskaya radiologiya, no. 3, 1959, 83-88.
DNLM

Explains radiation sickness, gives forms of clinical manifestation resulting from strength and length of radiation, describes the periods of the sickness and the damage degree of the skin. Main subject headings are Biological science--radiobiology and radiation injuries--classification. Translation: JPRS L-868-N.

128. FARBER, V.B. Fundamental principles in the treatment of acute radiation injuries. Terapevticheskiy arkhiv, v. 31, no. 8, 1959, 12-17.
RM1.T35, v. 31

This survey is based on a bibliography drawn exclusively from Soviet sources. Main subject headings are biological sciences--radiobiology and radiation injuries--therapy. Translation: JPRS L-1034-N.

129. FATEYEVA, M.N. News in Radiodiagnosis. Meditsinskaya radiologiya, no. 1, 1959, 77-81 DNLM

130. FEDOROV, I.V. Rate of adsorption of glycine from the intestine of animals in acute radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 87-88.
DNLM

131. FEDOROV, N.A. A review of the book "Protection against neutron radiation to 30 million electron volts". Meditsinskaya radiologiya, no. 12, 1959, 84.
DNLM

132. FENG, HSUEH-YU and others. Chinese journal Shu i ts'ung k'an (Periddical of plague) of 1958. Zhurnal mikrobiologii epidemiologii i immunobiologii, no. 10, 1959, 139-152. QR1.Z5 1959

This article is a survey of five issues pul ished in 1958 of the Chinese journal "Shu i ts'ung k'an". The survey is general, but also with specific reference to issues. There are several diseases described in relation to breeding, hosts, characteristics, danger, and prevention. Most of the diseases are common to northern and north-east China. There are two references to experience of germ warfare from Japan. Persumably, in 1940 the Japanese dropped a bacteriological bomb in the province of Che-chiang causing 99 people to become ill and, of these 97 died. The Kuomingdang was able to check the epidemic, but it was not until 1949 that the effects were stamped out entirely. In another reference to bacterial warfare, a woman, Ts'ao, I-hsu, related that the Japanese forced people to collect rodents for them. These rodents were infected with disease and released among the people. Since this time Ts'ao, I-hsu has taken a very active part in the "anti four menaces" movement (this is a program to kill sparrows, rats, flies and mosquitos). Chinese researchers have had success with the use of such chemical poisons as chloropirin, cyanide, zinc phosphate, etc., but they are constantly working to develop new and more powerful poisons. The original Chinese periodicals were not available.

133. FILIPPOVA, V.N., and others. Effect of x-rays on the enzymatic system of coenzyme A of the pigeon liver. Biokhimiya, v. 23, no. 1, 1958, 119-124. QH301.A343, v. 23

Six to 7 days after irradiation of pigeons in doses 2 to 3 thousand r, the intensity of acetylation processes in liver homogenates fell from a mean normal value of 465 ± 16 g sulfanilamide per g fresh tissue in 20 min to a corresponding value of 119 ± 8.5 g. Inhibition of acetylation has also been demonstrated with other acetyl acceptors: p-aminobenzoic acid, p-aninoazobenzene, p-aminoazobenzenesulfonate and a dye obtained by coupling cresidine with acyl-H-acid. The general effect of inhibition of the acetylation system is due to the decrease in coenzyme A concentration in the liver as well as to the decrease in activity of the protein component of the system. The degree of inhibition of the enzymatic component of the acetylating system has been correlated with the severity of the radiation syndrome. The results obtained indicate that the labile link in the system, affected by the radiation, is the catalytic reaction of acetyl group transfer from coenzyme A to the acceptor, that is, the enzyme transacetylase.

134. FOKINA, T.V. Changes in the morphological picture of the blood of young rats of various ages in acute radiation sickness. Meditsinskaya radiologiya, no. 6, 1957, 26-36. DNLM

Morphological blood changes caused by x-radiation in doses of 250, 500, and 1000 r were studied in young rats in age groups of 1-10, 10-15, and 21-42 days and in adult rats. Young rats, especially those in the 1- to 10-day group, showed more lasting and severe effects than the adults. These effects were more evident when 250 r was applied. Clinical symptoms of malnutrition were characteristic of the youngest group. Leucopenia develops most rapidly in young rats irradiated in the 3- to 6-wk group. Krythrocyte decrease occurs im all rats but is most serious in the 1- to 10-day group at a time when the hematopoietic system if forming. Main subject headings are Blood--effects of radiation, gamma radiation--physiological effects, radiation sickness--determination. Translation: JPRS NY-L-434.

135. GABELOVA, N.A., and others. Study of the rapid transmigrations of substances in an organism using γ -emitting isotopes. Biofizika, v. 3, 1958, 233-241. QH505.A1B53, v. 3

The dynamics of redistribution of a substance in an organism was investigated by applying the principal of contrasting variations in radiation intensity. The technique of nonlinear gamma radiation registration was used. The equipment consisted of several scintillation counters arranged to make up a multichannel radiograph. The method of nonlinear registration has the advantage over conventional collimated counter equipment in that the nonlinear method is more sensitive to small changes in intensity of γ -radiation. Several examples of application are given, and some other possible uses are pointed out.

136. GALANIN, N.F. Scientific conference on radiation sanitation. Meditsinskaya radiologiya, no. 7, 1959, 91-92. DNLM

137. GAMALEYA, A.N., and others. Specific features of postoperative course and radiation sickness in dogs subjected to x-ray irradiation. Meditsinskaya radiologiya, no. 4, 1959, 64-69. DNLM

The study of peculiarities of the postoperative course in animals affected with penetrating radiation, as well as specific features of the course of radiation sickness following the operation, is of theoretic and practical interest. The experiments were staged on 34 large dogs. Eleven of them were subjected to x-ray

irradiation in doses (600-650 r) provoking a severe course of acute radiation sickness, and subsequent operation-resection of 20 cm of the small intestine. Eleven dogs were subjected only to irradiation and 12-only operated upon. The operation was performed under either narcosis 4-5 hours following irradiation. Comparison of the clinical picture of these three groups of animals enabled to draw the following conclusions. 1. The results of the operation and the postoperative course in the irradiation dogs did not divulge any noticeable deviation and unfavourable course of the disease as compared to the group, of animals, which were not irradiated. The above concerns only those instances, when the onset of radiation sickness takes place after the healing of the wound-at the end of the first and at the beginning of the second week, which occurred even when high doses of x-rays were used, producing lethality in 75-80% of cases. 2. The course of radiation sickness in the irradiated dogs also did not show a noticable deterioration and unfavourable deviations in comparison with the group of recently irradiated, but not operated animals.

138. GELLER, L.I. Role of the spleen in the organism's reaction to irradiation. Meditsinskaya radiologiya, no. 5, 1959, 87-89. DNLM

139. Gen. Creasy addresses New York chapter. Armed forces chemical journal, no. 1, 1958, 8, 26-27.
UG447.A75 1958

The General stresses the fact that the Soviet Union does have chemical and biological weapons in its arsenal. He quoted the excerpt from Gen. Zhukov's speech which said that any new war would be characterized by weapons of mass destruction such as thermonuclear, atomic, chemical, and biological.

140. GINTSBURG, M.B. Action of ionizing radiation on some nonprotein thio-compounds of the animal organism. Biokhimiya, v. 23, no. 6, 1958, 840-844.
QH301.A343, v. 23

Coenzyme A activity in rat liver and brain in definite intervals after total irradiation decreases considerably compared to the normals. CoA activity in liver and brain of irradiated rats is more strongly inhibited by the action of thiol poisons than in the controls. The amount of glutathione in the liver of irradiated rats after 24 hours is somewhat increased. In all the intervals studied it is not changed in the brain.

141. GLUSHKO, A. Atomic weapons and anti-atomic defense. Krasnaya zvezda, 25, 26 and 28, Aug. 1954.
U4.K78 1954

A comparatively full description of methods to be used by Soviet ground troops in anti-atomic defense, including exploitation of protective features of the terrain, technical preparations for defense and decontamination of areas affected by radioactivity. Summary AF643566.

142. GLUSHKO, A.P., and others. Atomnoye oruzhiye i protivo-atomnaya zashchita (Atomic weapons and anti-atomic defense). Moskva, Voyennoye izdatel'stvo, 1958. 391 p. U167.G47

The book is intended for a large body of readers: the members of the Soviet Army and Navy and members of the DOSAAF. The material of the book discusses three basic questions: the physical principles of atomic weapons, their combat characteristics, and the ways and means of defense against atomic attack. Radiological warfare agents can be manufactured from radioactive isotopes produced expressly for this purpose, as well as the waste of the atomic industry. Gives a list of the isotopes formed in nuclear factors that may be employed in the manufacture of radiological warfare agents. This type of warfare agent can also be mixed with chemical warfare agents. Schematic drawings of a shell and aerial bomb armed with radiological warfare agents are shown in figure 21 in the book. In the final pages of the book the author discusses, at great detail the explosions of atomic bombs. He claims the effects of the bomb radiation on the human organism are: the size of the dose, the exposure time, and the isiosyn-crasies of each person. The use of penicillin, strep-tomycin, and other antibiotics has a beneficial effect during the period of radiation sickness. Translation: ATIC F-TS-9940/V, 159 p., Nov. 1959. Translation: JPRS NY-L-475, p. 207-285. The following covers the chapter, Military radioactive substances, p. 95-100. The article deals with radioactive warfare agents (boyevyye radioaktivnyye veshchestva - BRV) intended for contamination of air, water, areas, and various objects to create casualties in personnel and render military operations difficult. It explains nuclear reactions and the damage which can be caused by the resulting alpha, beta, and gamma rays. The advantages of utilizing the radio isotopes whose half-life is significant are explained and 12 are listed from the 300 which are given in the monograph "Atomnaya energiya", 1954, Publishing House of Foreign Literature. Other advantages are given as their lack of odor and color, the various forms in which they can be used such as liquids, smokes, or powders, and the various means by which they can be disseminated such as sprays, bombs, rockets, etc. Diagrams are given of an aerial bomb and

a projectile. Main subject headings are Biological sciences--radiobiology and radiological warfare--materials. Translation: ACSI H-2733.
The following covers the chapter, Field radiation monitoring, p. 344-347. The detector is intended for the detection and measurement of radiation levels by β-α radiation in a dosage range from 0.01 to 0.8 roentgens per hour. A gas-filled counter tube is used as a pickup, and the continuous-operation life under normal working conditions is not less than 50 hours. Main subject headings are Nuclear physics--instrument and radiation meters--design.

143. GLUSHKO, A. Construction of field fortifications in winter. Krasnaya zvezda, 29 Jan 1955, 2.
U4.K78 1955

The article gives instructions to [military] readers how to protect troops and military and technical equipment from atomic attack in winter by various types of shelters and informs them about the protective properties of snow, ice, and other materials. Summary AF 671210.

144. GNEDIN, A. Anti-atomic defense of personnel and aviation material. Vestnik vozdushnogo flota, no. 5, 1955, 52-57. TL504.V45 1955

A number of anti-atomic defense measures for the protection of an airdrome are described in this article. A list of enclosures consists of; the use of a gas mask and protective cloak against radioactive particles, light protective suit in combat attire, dispersed location of combat materiel on an airdrome in order to protect it against an atomic weapon, a pit for the protection of a motor transport vehicle, a pit for fuel storage tank, and protection of a dug well. The article stresses the need for antichemical defense, and lists ways for individual and collective defense. Summary: AF682115.

145. GNEDIN, A. Radiation reconnaissance and warning service in the airfield area. Vestnik vozdushnogo flota, no. 10, 1954, 41-45. TL504.V45 1954

Principal attention and efforts of a radiation reconnaissance team should be directed to the detection of contamination of parking stands of aircraft, parking lots of trucks, personnel areas, ammunition depots, fuel and lubricant tanks, stores of technical equipment, food storage and water supply sources. Radiation surveillance should be carried out before the atomic attack and after it. When contamination is detected the chemical defense alert is announced and duplicated by phone, radio, gongs, sirens, pyrotechnical signals, etc. Special teams, for anti-chemical defense, should

be provided with gas masks, protective overalls, protective boots, and gloves. Warning signs in contaminated areas should be of various sizes and colors as to the amount of radiation of the contaminated area. Dosimetric instruments for the detection of radioactive contamination of the air and terrain consists of a gas chamber, neon tube earphones, and power supply. Other instruments for the measurement of radiation intensity, consist of an ionization chamber, direct current intensifier, electrometric device, and power supply. Correct operation of duties will allow the personnel to function in its combat actions. Translation: AF 651429.

146. GOL'DAT, S. YU., and others. Effect of combined application of ultraviolet and x-rays upon the mutagenic process in streptomyces aureofaciens LC-B16. IN: Akademiya nauk SSSR. Doklady, v. 125, no. 5, 1959, 1134-1136. AS262.S3663, v. 125

The effects of ultraviolet rays and x-rays on spores were studied, both singly and combined at 1, 2, and 3 hour intervals. The tabulated results show that the lethal effect of the combined irradiation taken at arbitrary succession is considerably below the expected cumulative effect. Experiments indicate that the ultraviolet rays seem to weaken the lethal effects of the succeeding x-rays. The effects of the combined irradiation on the Streptomyces aureofaciens LC-B16 mutation and the effects related to the time interval between irradiations are tabulated. The mutation frequency in treatments by x-rays followed by ultraviolet rays is considerably higher than in the reverse order of irradiation. Preliminary treatment with ultraviolet rays lowered the efficiency of the following x-radiation.

147. GOLUBENTSEV, D.A. General iron content in the blood plasma of dogs in the development of acute radiation sickness. Meditsinskaya radiologiya, no. 2, 1958, 78-79. DNLM

148. GORBUNOV, I.P., and others. Deystviya grupp samozashchity i ikh podgotovka (Operation of self-defense teams and their training). Moskva, Izd-vo DOSAAF, 1957. 92 p. illus.

Activities of self-defense teams in liquidation of the affects of air attack. Activities of self-defense teams in case of declared emergency. Training of personnel for self-defense teams.

149. GORDEYEVA, K.V., and others. Change of certain physicochemical properties of blood plasma proteins in animals during acute radiation sickness. Meditsinskaya radiologiya, no. 10, 1959, 13-17. DNLM

In dogs subjected to x-ray irradiation in the dose of 400 r the authors investigated the viscosity, opacity transparency, surface tension, thermal coagulation and protective properties of the blood plasma, as well as the aggregation and sedimentation of fibrinogen isolated from the plasma. At the peak of acute radiation sickness there was noted an increase of the viscosity and prolongation of the time of thermal coagulation of the blood plasma. In the majority of the experiments there was seen an opacity of the plasma.

150. GORELOV, F.I. Use of morphine-ether anesthesia during primary surgical treatment of gunshot wounds of the intestine in various periods of acute radiation sickness. Voyenno-meditsinskiy zhurnal, no. 7, 1958, 53-55.
RC970.V55 1958

The effects of morphine-ether anesthesia were studied in 64 dogs suffering with gunshot wounds of the intestine during various stages of radiation sickness. It was concluded that primary treatment of gunshot wounds of the intestine may be conducted under morphine-ether anesthesia during various periods of acute radiation sickness, but is best used during the primary reaction or during the period of resolution of acute radiation sickness. A sudden cessation of respiration, and even death, occurred more often during inhalation anesthesia administered during the acute stage of radiation sickness.
Translation: JPRS 870-NY.

151. GORIZONTOV, P.D. Pathogenesis of acute radiation sickness in the pathophysiological aspect. Meditsinskaya radiologiya, no. 1, 1959, 6-12. DNLM

Paper gives analysis and characteristics of changes occurring in the body following irradiation. On the basis of data of a number of works the author concludes that the pathogenetic action of ionizing radiation on the body is effected by various paths. These paths are processes which are characterized as: 1) primary physico-chemical and chemical changes developing due to ionization and excitation of molecules; 2) disturbances of neuroendocrinic regulatory mechanisms; 3) infection and manifestations of infectious and noninfectious allergy.

152. GORODETSKIY, A.A. Effect of acs on the course of radiation sickness induced with radiophosphorus. Meditsinskaya radiologiya, no. 11, 1959, 59-62.
DNLM

The author studied the efficacy of antireticular cytotoxic serum (ACS) on the course of acute radiation sickness in rats induced by radiophosphorus administration into abdominal cavity. The greatest efficacy

was obtained with 5 ACS injection given from the 1st to the 15th day of the disease in a dose of 0.1 ml of the serum diluted in proportion of 1:500 solution. The therapeutic effect was associated with reduced severity of radiation sickness, less pronounced hemorrhagic syndrome, lower degree of hemopoietic system affection, and decreased polynuclease activity of the urine.

153. GRAFOV, A.A. Influence of the suprarenals on the higher nervous activity and hematological indices in irradiated rats. Meditsinskaya radiologiya, no. 5, 1959, 42-48.
DNLM

The article contains studies on the influences of the suprarenals on the higher nervous activity of irradiated rats (800 r). The author investigated the reactivity of the cerebral cortex and hematological indices, which according to the conception of G. Selie, enter into general adaptation syndrome. It was established that disturbances of conditioned reflex connections depend upon the typological peculiarities of the higher nervous activity and the presence or absence of suprarenals in the experimental animals. The intensity of the stimulating and inhibitory process and the hematological indices decreased more rapidly in adrenalectomized irradiated rats in comparison with intact irradiated animals with similar typological peculiarities of the higher nervous activity. The use of functional loading after the irradiation caused a sharper reduction of the intensity of principal nervous processes in adrenalectomized rats. The similarity of higher nervous activity disturbances, due to the action of different pathogenic stimuli, gives ground to assume that the reactivity of the cerebral cortex pertains to the nonspecific general reactions. The obtained data testify to the fact that the hypophysis and suprarenals are not the only regulating system in the execution of general reactions of the body.

154. GRAYEVSKAYA, B.M., and others. Role of suprarenals in certain metabolic disturbances in the irradiated body. Meditsinskaya radiologiya, no. 3, 1959, 21-25.
DNLM

The paper presents studies on the changes of carbohydrate and protein metabolism in irradiated animals in dependence to the degree of functional activity of suprarenals. The results of above investigations show inhibition of the hormonic function of the suprarenals under the effect of irradiation. Adrenalectomy considerably weakens the intensification of proteolytic processes and inhibition of phosphorolysis in tissues due to irradiation.

155. GRAYEVSKIY, E.YA., and others. On the antiradiation protective effect of substances blocking the transportation of oxygen by hemoglobin. IN: Akademiya nauk. Doklady, v. 122, no. 3, 1958, 381-384. AS262.S3663, v. 122

The data indicated that the protective effects resulting from prophylactic introduction of sodium nitrate or from inhaling carbon oxide before or after irradiation are conditioned by hypoxia produced in organisms as the result of the substances blocking the transportation of oxygen by hemoglobin.

156. GRODZENSKIY, D.E. Irradiation and the endocrinic system (A review of experimental data). Meditsinskaya radiologiya, no. 5, 1959, 77-83. DNLM

157. GRODZENSKIY, D.E. Radiobiologiya (Radiobiology). Moskva, 1958. 32 p.

Discusses in detail the biological effect of ionizing radiation with explanation of the general principles of the phenomena, and indicates the current tasks of researchers in this field. Explains that new methods of protection of ionizing radiation will be found and also efficient means of treatment of radiation sickness. Translation: AF1256229.

158. GROMADA, Y., and others. Influence of x-ray irradiation on certain portions of the peripheral system in rats. Meditsinskaya radiologiya, no. 4, 1959, 21-27. DNLM

The authors conducted microscopic investigations of nerve fibers and their endings in 25 adult rats subjected to single irradiation in the dose of 2,400 r. Nerve fibers of the joint sac, atrial septum and the intestinal wall were under study. Staining was performed with silver according to Bilshovsky-Gross in Lavrentiev's modification/ in 2 rats methylene blue was employed. In 4 hours following the irradiation morphological phenomena could be revealed, which testify to the state of extreme irritation. In 24 hours there are fewer changes. They appear again in a large degree upon survival of the animals up to 72 hours. The changes are quite expressive on nerves of the joint sac, and to a lesser degree in the atrial septum; least of all they are marked in the intestinal wall. The changes are not specific. They are noted also after other procedures. In an insignificant number they are observed in normal conditions, undoubtedly, in dependence to the state of irritation. Only a part of fibers and endings are affected, the other part always remains unchanged. Changes in the joint sac, atrial septum and intestinal wall testify to the fact that there are primary

injuries of the nerve tissue. It can be assumed that the morphological changes in fibers and receptors may be manifested in the reception and in conductors of reflex processes, appearing in irradiated tissues.

159. GROMAKOVSKAYA, M.M. Effect of x-rays upon the reflectory excitability of the vagus center. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 1, 1959, 205-208. AS262.S3663, v. 124

Early changes in the reflectory excitability of the vagus center in irradiated animals were studied in order to establish the ratio between the rates of disturbances in the hematoencephalitic barrier penetrability and the change in the vagus center function.

160. GUBIN, V.A. Certain histochemical studies of blood cells in acute radiation sickness. Meditsinskaya radiologiya, no. 10, 1959, 3-8. DNLM

The article presents histochemical investigations of the content of oxidase, per -oxidase, alkaline phosphatase, and glycogen in the blood leukocytes of rabbits subjected to the action of x-ray irradiation in doses of 400, 800, and 1,500 r. The irradiation provokes a noticeable rise in the level of glycogen and a decrease of the phosphatase activity in the neutrophils; these changes are revealed from the first hours after the irradiation. The drop of oxidase and peroxides activity was less marked. With the radiation sickness progressing the above changes, as a rule, intensified and usually were greater with the high irradiation. Reduction of the enzyme activity in the peripheral blood leukocytes was evidently caused by the disturbance of the processes of cell maturation in the hemopoyetic centers and their entrance into the blood.

161. GUBINA, G.P., and others. Some data on echinopsin alkaloid treatment of patients for chronic radiation sickness. Vestnik rentgenologii i radiologii, no. 5, 1959, 29-33. RM845.V4 1959

Echinopsin alkaloid has been used with great effectiveness, in the treatment of chronic radiation sickness. The article claims that this has been used for the first time by the Russians. Poor tolerance to echinopsin is possible in patients with marked manifestations of hyperthyroidism and in patients with angiopastic crises in which there is a predominance of overstimulation of the central nervous system. Three of the patients had worked with ionizing radiation for more than 20 years. Translation: JPRS:2223.

162. GUSEV, N.G. Spravochnik po radioaktivnym izlucheniyam i zashchite (Guide book for the study of radioactive radiations and protection). Moskva. QC795.G8

163. GUSTERIN, G.A. The Leningrad city conference on medical radiology. Meditsinskaya radiologiya, no. 6, 1959, 95-96. DNLM

164. GVOZDEV, M., and others. Atomnoye oruzhiye i protivoatomnaya zashchita (Atomic weapons and anti-atomic defense). 2d ed., rev. and enl. Moskva, Izd-vo. DOSAAF, 1958. 227 p. UF767.G85 1958

----- Moskva, Izd-vo DOSAAF, 1956. 174 p. UF767.G85 1956

Information specifically concerns the atomic bomb and protective measures against the dangers of atomic warfare. Contents cited are: Physicotechnical bases of the atomic weapons. General characteristics of the atomic weapon. Shock wave of the atomic explosion. Its light emission. Penetrating radiation. Radioactive contamination of the locality. Dangerous effect of the atomic weapon.

165. H-War Defense: The Russians dig in. Newsweek. 11 Apr 1960, 80. AP2.N6772

Rogers Cannel, of the Stanford Research Institute in Menlo Park, Calif., and Richard B. Foster, fellow engineer consultant, have been studying the Russian civil defense program for the past few years. They both agree that the Soviet H-war defense is better than that of the United States. They claim that instead of commercial advertising the Russians have civil defense advertising. They admitted that it is not known how many shelters the Soviets have. Studies made by the SRI and Rand Corp.'s Leon Goure reveal that the Soviet CD has: A paramilitary cadre of about 40,000 men trained expertly in CD; Evacuation plans have been made; All types of shelters have been designed; 110 million Russians had completed a 10-hour course in 1956, which was followed by a 22-hour course which was as far reaching until in 1958 the supply of textbooks was exhausted, according to the Russians. Since the last War the Soviet government has ordered that no new industries will be built in large cities. Krushchev boasts that in the "Event of a new world war...we would survive. The West would suffer imcomparably more."

166. HERCIK, F. The mechanism of the biological action of radiation. Folia biologica, (Praha) v. 2, no. 4, 1956, 193-200. QH301.F6, v. 2

Reaction mechanisms involved in radiation injuries of biological materials are discussed. It is concluded that the quality of radiation damage does not depend on the radiation dose. A small dose of radiation may result in a slight deviation in nucleoprotein metabolism, which may be manifest by a permanent, hereditary change. With large doses, disintegration of nucleoprotein takes place. While other mechanisms are also involved in radiation injuries, the author concludes that the nucleoproteins are the central axis of all the changes. The article is in English.

167. IGNAT'YEV, A. (The biological effect of radiation and the clinical aspects of radiation sickness). Moskva, Leningrad, 1954. p. 76-106.

This book was not located in the Library of Congress. The entry was found in a bibliography of an article written for civilian defense in the USSR.

168. IL'IN, D.I., and others. The accumulation of radioactive elements in some groups of water organisms. Atomnaya energiya, v. 5, no. 2, 1958, 171-174. QC770.A83, v. 5

Beta activities were filled into a natural container of water. A number of fishes, plankton, etc. lived in this water. After having lived in radioactive water for one year the organs of the various kinds of fish were investigated. There are four tables.

169. IL'IN, L.A. The efficacy of certain components in causal treatment of acute Y^{91} intoxication. Meditsinskaya radiologiya, no. 5, 1959, 72-76. DNLM

The author studied the effect of benzhydrylaminodiacetic, benzylamindiacetic, parafucsinhexa-acetic and hexamethylendiacetic acids on the acceleration of Y^{91} excretion from the organism of white mice. No positive effect from the use of the above agents was observed. Ethyldiamintetra-acetic acid possesses a pronounced stimulating action on the excretion of Y^{91} from the organism of white mice.

170. IL'INSKAYA, I.V., and others. Treatment of radiation sickness complicated by traumatic shock. Meditsinskaya radiologiya, no. 10, 1959, 38-41. DNLM

The article deals with the study of the course of radiation sickness, complicated by mechanical trauma and its treatment. The results obtained indicate that the injury inflicted to the irradiated (700 r) animals aggravated the course of radiation sickness and led to the death of all rabbits. When the animals were subjected only to irradiation with a similar dose the death rate comprised 50%, while that following trauma-30%. Complex treatment of radiation sickness in animals recovered from the condition of shock throughout a course of 21 days effected a survival rate of 90%, whereas the lethality in the control group was 100%.

171. In readiness for aid-raid defense in the USSR. IN: International civil defense. Bulletin of the international civil defense organization, Geneva, March, no. 45, 1959, 4.

Under this slogan (above-mentioned title) the DOSAAF of the Soviet Union is preparing to train the whole population this year, by means of 22 hours of courses. The instructors will be trained in schools of the PVO (air-raid, defense) in courses organized by the regional committees, courses on defense in the great industrial undertakings, and in universities. Each PVO school has a training ground of 50 x 50 meters, trenches for defense, underground shelters for 25 persons, and gas chambers. The corps of instructors is composed of retired or reserve officers, professors from the universities and army colleges and Red Cross staff.

172. Irkutsk State Antiplague Institute of Siberia and the Far East. AID report AF 1114591.

This report was written in June of 1957 and covers the years of 1937-1956. The Institute has manufactured, since 1945, bacteriological preparations of some types by more than 7 to 10 times and others 2 to 5 times. There is a list of the directors and department and laboratory heads as of 1946. A part of the report is devoted to the names of the reports the Institute has published. It is noted in the preparation of this list that some reports were made from un-named Military Bacteriological Laboratories. One such title is "The Dry Live Tularemic Vaccine of the Red Army Scientific Research Institute of Epidemiology and Hygiene-- report no. 2, by M.M. Faybich and T.S. Tamarina, of the Red Army Scientific-Research Institute of Epidemiology and hygiene. The conclusions from this article show that they are manufacturing bacteria, testing the strength of the bacteria, show how long bacteria can be kept, and testing animals and humans with the various bacteria. By virtue of

its equipment and the scope of its scientific work the Institute is claimed to be the leader in the Soviet Union, according to information found in the Russian newspaper Vostochno-Sibirskaya Pravda, Jan. 5, 1937. The report ends with the assumption that the Irkutsk Chemical Kombinant, which was modernized after the war with machinery from large German chemical plants; employs some 2,000 workers; is under military mail office no. 38,405.

173. IVANITSKAYA, A.F. Effects of irradiated media on the spleen tissue transplantation. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 2, 1959, 444-447. AS262.S3663, v. 124

The participation and effects of plasma media irradiated with 5000 and 100,000 r rays on cell growth in spleen section transplantation were studied. The medium irradiated with 100,000 r was used the same day, the next, and 2 days later. The results showed that the irradiation of media (extract and plasma) with 100,000 r affects the growth and behavior of nonirradiated mouse spleen, produced toxic effects in the growing culture cells, and induced serious disturbances in the blood cells, especially lymphocytes. The connecting tissue cells are also badly afflicted. In the medium irradiated with 5000 r the free blood cells undergo pathological changes and are destroyed on the second day following the exposure, while the reticular elements retain their morphological and functional properties and the changes which might take place do not affect general functions of the tissue as a whole. The lymphoid group of the three basic spleen cells (lymphoid, granular, and reticular) is the first affected and the last to restore itself.

174. IVANITSKAYA, A.V. A study of the effect of γ-rays of Co^{60} upon the haemocytes and connection tissue cells of a mouse spleen in the process of explantation. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 1, 1959, 209-212. AS262.S3663, v. 124

Studies of 1000 tissue cultures irradiated by Co^{60} rays of 100,000 and 5,000 r showed lymphatic disturbances during irradiation with total deterioration within 24 hours. The exposure of spleen tissue in vitro to 5,000 r induces changes in the tissue but does not paralyze the cell properties. The data obtained indicated that of three groups of spleen cells, the reticular, granular, and lymphatic, the latter is the most radiosensitive.

175. IVANITSKAYA, YE.A., and others. The effect of whole-body x-irradiation on absorption properties of the liver. Biofizika, v. 3, 1958, 201-207. QH505.A1B53, v. 3

Autoradiographs and histological preparations were made from rat liver perfused with colloidal silver-110 at different periods after whole body irradiation with 1000 r x-rays. The silver was phagocytized by Kupffer cells and adsorbed on vein walls and capillaries. The decrease in liver absorption capacity for colloidal silver is due to changes in the properties of high polymer compounds normally responsible for absorption.

176. IVANITSKAYA, YE.A. Influence of ionizing irradiation on the sorption capacity of free cells. Biofizika, v. 4, no. 1, 1959, 71-77.
QH505.A1B53, v. 4

The influence of roentgen rays on the sorption of radioactive colloids in free cells, erythrocytes and the cells of Ehrlich's ascite carcinome, was investigated after the effect of irradiation. It was demonstrated that in non-irradiated cells the sorption of the mentioned colloid takes place, during the first 5-10 min. and that an equilibrium is then established in the studied cells. The sorption capacity of the cells decreases after irradiation with 1000 r.; the decrease reaches it maximum (40%) in 24 hours. The sorption of the radioactive colloid declines sharply when the experiments are carried out at 0°C. Beside the mentioned alteration of the sorption capacity, the decline of the electrokinetic activity was also observed in the erythrocytes after irradiation. The post-irradiation alteration of the sorption capacity of erythrocytes and of the cells of Ehrlich's ascite carcinome demonstrates the changes of the superficial properties of these cells evidently closely related to the intensity of the metabolism.

177. IVANITSKIY, A.M. The mechanism of vascular permeability disturbance in rabbits poisoned with tritium. Meditsinskaya radiologiya, no. 7, 1959, 47-51.
DNLM

Subcutaneous introduction of tritium (0.2 curie/kg) to rabbits causes a moderate increase of vascular permeability. The administration of adrenaline lowers the permeability. In rabbits subjected to tritium the action of adrenaline is more pronounced than in healthy animals. Acetylchlorine, which raises the permeability in normal conditions, decreases it somewhat in the affected rabbits. Novocain facilitates the vascular permeability increase in the affected rabbits, as compared with its decrease in the healthy animals. The

data obtained may testify in favour of the protective role of the nervous system, its sympathetic portion in particular, which is manifested in the increase of the permeability in rabbits subjected to the action of tritium.

178. IVANOV, A.YE., and others. The change of phagocytosis in the lungs in radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 62-67. DNLM

The authors report on the state of pulmonary phagocytes in rabbits subjected to x-ray irradiation in the dose of 800 r. The phagocytosis was studied in the imprints and histological preparations of the lungs by introduction into the trachea of trypan blue during the life of the animals. The activity of oxidative enzymes (succindehydrase and cytochrome oxidase) was determined in the pulmonary macrophages with the aid of histochemical methods. The investigations were conducted in dynamics, starting from the 6th hour up to the 20th day following irradiation. It is shown that in radiation sickness there occurs a considerable decrease of phagocytic properties of pulmonary macrophages. The changes are of a phasic character, corresponding with the stages of radiation sickness development as a whole. The decrease of phagocytosis occurs as the result of diminution of the absolute number of macrophages and the loss of the ability to engulf foreign particles, as well as due to the disturbance of processes of intracellular digestion, which is evidenced by the drop of the activity of oxidative enzymes. Inhibition of phagocytosis is, apparently, one of the principal causes of permeability of the lung barrier and the peculiarity of pneumonic changes in conditions of radiation sickness.

179. IVANOV, A.YE. The change of pulmonary phagocytes in radiation sickness of rabbits. Meditsinskaya radiologiya, no. 2, 1959, 59-62. DNLM

The phagocytosis in the lungs was studied by way of intratracheal introduction of a trypan blue solution with the subsequent counting of cells which have ingested the stain (in prints and histotopographic preparations). Total irradiation of rabbits by filtered x-rays (500 r) provokes an inhibition of the activity of pulmonary macrophages. This is expressed by the drop of the number of cells which have ingested the stain, as well as by retarded digestion of engulfed trypan blue. Correspondingly to the stages of development of acute radiation sickness there are seen: a short phase of intensified phagocytosis; gradual reduction of phagocytic activity with subsequent insignificant inhibition at the height of the affection and restoration.

180. IVANOV, D., and others. Radioactive decontamination of skin and clothing. Krasnaya zvezda, 24 Dec 1954; 3.
U4.K78 1954

The article gives instructive information to the readers on measures against radioactive contamination resulting after the explosion of an atom bomb. Article is from a series "Atomic Weapon and Anti-atomic Weapon Defense". The authors are Colonels of Medical Service. Gives detailed methods of how to wash and how to decontaminate your clothing. The commander will decide whether proper decontamination was done or whether there should be a more complete process of decontamination. Special crews are used to deactivate clothing and equipment. This deactivation is performed in isolated areas. Drawings at the end show the deactivation of clothing and equipment and radioactive decontamination of the skin. Summary: AF671186.

181. IVANOV, K.V., and others. On the method of studying the role of physical loading in conditions of irradiation of animals. Meditsinskaya radiologiya, no. 5, 1959, 84-85. DNLM

182. KACHUR, L.A. The 37th meeting of the All-City seminar on the radiobiology and physics of penetrating radiations at the Central research institute of medical radiology of the Ministry of public health of the USSR (January 23, 1959). Meditsinskaya radiologiya, no. 5, 1959, 95.
DNLM

183. KAKURIN, L.I. The phagocytic activity of neutrophils of aceptic peritoneal exudate in experimental acute radiation sickness. Meditsinskaya radiologiya, no. 5, 1959, 7-11. DNLM

The author studied the absorption of bacteria and the bactericidal action of neutrophilic leukocytes of rat's peritoneal exudate, subjected to a total single γ-irradiation (700 r). The method makes a provision for standard qualtitative correlations between leukocytes and live intestinal bacilli. A regular drop of the phagocytic activity of neutrophils at the onset of radiation sickness and in 6-8 hours following radiation was seen. At the height of radiation sickness (5 days after the irradiation) and especially during the restorative period (15 days after irradiation) the differences of phagocytic activity are less regular due to considerable deviations from the general regularity in some animals. A considerable inhibition of the bactericidal activity of leukocytes of the exudate was observed in all periods following irradiation.

184. KALANTAROV, K.D. An upper oxygen limit in yeast irradiation lesions. Biofizika, v. 3, no. 1, 1958, 111-113. QH505.A1B53, v. 3

A maximum in the number of cell deaths after lesions caused by the irradiation of yeast cells depends on the O_2 concentration. Increase in oxygen pressure after the maximum has been reached leads to a lowering of the percentage of affected cells. The maximum is seen at an oxygen partial pressure of 300 mm Hg. This phenomenon is similar in nature to the upper oxygen limit which is well recognized in physical chemistry. The phenomenon of an upper oxygen limit expressed as a maximum of cell deaths, with a subsequent decrease in the percentage of dead cells, is only seen in cells whose death has been considerably delayed. The effect could not be deomonstrated in cells which were killed during the irradiation or died a short time after it.

185. KALANTAROV, K.D. The upper oxygen limit of reactions following radiation injury. Meditsinskaya radiologiya, no. 6, 1959, 89. DNLM

186. KALININA, N.A. The effect of single irradiation of rabbits in the last days of pregnancy on the functional conditions of fetuses. Meditsinskaya radiologiya, no. 1, 1959, 26-31. DNLM

At the end of pregnancy (24th-27th day) rabbits were subjected to a single total x-ray irradiation in the dose of 600 r or to irradiation of the anterior part of the body in the dose of 1200 r. The reaction of the fetuses to asphyxia, caused by ligature of the umbilical cords was studied in 24 and 72 hours after the irradiation; the time to the first asphyxiated inspiration, the number of respirations and the time to the last respiratory movement (the characteristics of the condition of the respiratory centres) and the length of life. Both total irradiation and the irradiation of the anterior part of the animal body increased the excitation of the fetal respiratory centres, which was replaced by depression in 72 hours. The delay in the fetal development can be noticed by their weight in 72 hours. These data demonstrate that the changes in the condition of the maternal organism after the irradiation have an injurious effect on the fetuses (even on those which were not subjected to direct irradiation).

187. KALUZHENKO, R.K. An instance of chronic radiation sickness. Voyenno-meditsinskiy zhurnal, no. 6, 1955, 88-90. RC970.V55 1955

Description of a fatal case of a roentgenologist who used to disregard work safety rules. The problem is considered important because of the ever-increasing danger caused by radiation sources in medicine and nuclear energy research and application. The author is a Senior Lieutenant of the Medical Service. Translation: AF728078.

188. KAMENKO, P. Radioactive decontamination of equipment and skin in winter. Krasnaya zvezda, 30 Jan 1955, 2.
U4.K78 1955

Contains information on the effects of atom bomb explosion and instructs Soviet military personnel in methods of defense against radiation. The author is a Colonel of the Guard. The article is one of a series of "Atomic Weapons and Anti-atomic Weapon Defense." The author contends that snowfall in the winter conduces a quick fall-out of radioactive particles from the cloud formed after the explosion of an atomic bomb. It is necessary for the troops to remove this contamination quickly and for them to be supplied with clothing. Batteries for the instruments determining the degree of radiation should be kept in warm places. He mentions the methods by which the troops can decontaminate themselves and their weapons. In certain areas of troop concentration special units are trained for the decontamination. He concludes that the means and methods of decontamination work are simple and reliable and if applied quickly will save personnel and enable them to perform their combat mission. Summary: AF671204.

189. KANEVSKAYA, M.D., ed. Pamyatka naseleniyu po zashchite ot atomnogo khimicheskogo i bakteriologicheskogo oruzhiya (Civil defense against atomic, chemical, and bacteriological weapons). Moskva, Izd-vo DOSAAF, 1957. 61 p.

Explains what bacteriological weapons are, methods of their use, signs of bacteriological attack, and affecting properties of bacteriological weapons. Gives the individual and collective means of defense against atomic, chemical, and bacteriological weapons. Emphasizes the importance of how to act in an area contaminated with radioactive and poisonous substances or bacterial agents. Describes sanitary processing, deactivation, decontamination, and disinfection and veterinary processing. Translation: JPRS-1535-N of pages 17-20, 24-32, 41-43, and 49-61 with captions (translations) of the figures accompanying the text of the above mentioned pages.

190. KARPFEL', Z., and others. Effect of certain nucleotides and nucleosides on the regeneration of hemopoietic tissue after irradiation. Biofizika, v. 4, no. 1, 1959, 64-70. QH505.A1B53, v. 4

Since it has been demonstrated by many researchers that the synthesis of desoxyribonucleic acid is significantly decreased after irradiation, an attempt to modify desoxyribonucleic acid (DNA) synthesis and through this modification cause the regeneration of hematopoietic tissue by the use of certain nucleotides and nucleosides that are part of the DNA molecule, is reported. The effect of desoxyriboneucleotides and desoxyribonucleosides was evaluated according to the blood picture, and the effect of desoxycytidylic acid and cytidylic acid was studied with regard to the synthesis of DNA in vitro bone marrow suspensions, and in vivo tests on mice. Results verify that of the substances used, desoxyribonucleotides which contain the pyrimidine base exert the most favorable postirradiation effect both on the blood picture and on animal survival. In this research desoxycytidylic acid, and its mixture and theymidylic acid, when used in small dose, exerted the best effect, and the use of thymidylic acid alone in large quantities also had a favorable effect. Desoxyribonucleosides had an unfavorable effect. Ribonucleotides were ineffective.

191. KAULEN, D.R. Diphtheria toxin obtained on mediums sterilized by gamma-rays. Meditsinskaya radiologiya, no. 8, 1959, 49-54. DNLM

The author studied the possibility of radiation sterilization of liquid nutritive media for cultivating diphtheritic bacteria. Gamma-rays were employed in the following doses: 600,000, 1,000,000 and 1,500,000. The sterilization of the media by irradiation does not deteriorate their nutritive properties, while the biochemical indices remain almost unchanged. The diphtheria toxin titer obtained on media sterilized by irradiation is not inferior to that derived from autoclaved media, while in a number of instances (irradiation with 600,000 r) it even surpasses it. Anatoxins made of toxins from irradiated media were not inferior by their immunogenic and antigenic properties to the control preparations. These experimental data point to the possibility of "cold" sterilization of liquid nutritive media.

192. KAULEN, D.R., and others. A serological and electrophoretic study of diphtheria antisera irradiated with sterilizing doses of γ rays. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 9, 1959, 44-51. QR1.Z5, v. 29

The effects of irradiation on the antitoxic anaphylactic, and electrophoretic properties of diphtheria antisera were studied at the various doses used for sterilization. Both crude and purified diphtheria antitoxic antisera were used. Irradiations were carried out with a cobalt-60 source with a total power of 5 kc. The dosage rate was 600 r-min. Data are tabulated. The results demonstrate considerable changes in the properties of antisera taking place as a result of exposure to large doses of gamma radiation. In all experiments a regular fall in the antitoxin titre was demonstrated. A greater destruction of antitoxin was observed in the crude antiserum than in the purified. Possible reaction mechanisms involved are discussed.

193. KAZANTSEVA, N.S. Complex method of treating radiation injuries of the skin. Vestnik rentgenologii i radiologii, v. 34, no. 2, 1959, 47-51. TM845.V4, v. 34

Tissues therapy and novocain block, used in combination with local treatment of radiation injuries, are powerful stimulating factors for healing. Of the substances used locally in radiation injury, particular attention is merited by oil from the berries of sea buck thorn, which is a highly effective substance due to its content of carotene and of vitamins A, B, and E. During the period of epithelialization, it is advisable to use skin transplants by the Thiersch method, of fibrin films, the use of which creates optimal conditions for regenerative processes. Main subject headings are: Biological sciences--radiobiology and radiation injuries--therapy. Translation: JPRS L-895-NY.

194. KEDROVA, YE.M., and others. Absence of summation of protective effect of cysteine and ACTH in irradiation of rats by x-ray. Meditsinskaya radiologiya, no. 1, 1959, 60-63. DNLM

The protective effect of various doses of cysteine and ACTH as well as combined action of both preparations was studied. Experiments were carried out on rats, irradiated by x-rays in the doses of 600 to 700 r. As a result of experimental work it was established that introduction of ACTH 1 unit per day for 3 to 7 days previous to irradiation decreases the death rate of irradiated animals. The most pronounced effect was obtained in introduction of the hormone for 6 days. Large doses of ACTH or its prolonged administration decreased its positive effect. Introduction of protective dose of ACTH was ineffective when cysteine was given to these animals before irradiation in doses which had a protective effect on animals which were not treated by ACTH beforehand. On the contrary, combined treatment of rats by ACTH and cysteine accelerated the death of the animals.

195. KHODYREVA, M.A. Permeability of radium bromide through intact skin. Meditsinskaya radiologiya, no. 6, 1959, 77-82. DNLM

The paper sets forth an experimental investigation on the possibility of passage of radium bromide through intact skin of animals. The experiments were staged on rabbits. The permeability of bromide of radium was assessed by determining the radioactivity in the blood with the aid of a sensitive method of photographing alpha particles on thick plates. During the experiments the author studied the behavior of the animals, their weight and the state of the peripheral blood. A solution of radium bromide applied in the concentration of 4 mC/cm^2 of skin surface passes through the intact skin of rabbits. A regularity of specific activity increase of the blood has been observed. A change of the leukocyte content in the peripheral blood has been noted in animals subjected to the action of radium. The weight loss of experimental animals is in direct dependence to the duration of radium salt action on the skin.

196. KHOKHLOV, V. Population defense against bacteriological weapons. Voyennyye znaniya, no. 3, 1957, 23-24. U4.V878 1957

Description of bacteriological weapons, and protection against them. Pathogenic microbes can be dispersed by special sprayers, containers, aviation bombs, missiles, etc. Individual and collective means of protection against contagious diseases caused by bacteriological warfare agents. General prophylaxis, vaccination, disinfection. Describes annihilation of insects, etc.

197. KHOLIN, V.V. Course of acute radiation sickness in rats at the period of their transfer to independent feeding. Meditsinskaya radiologiya, no. 5, 1959, 85-87. DNLM

198. KHRAIAN, A.KH. Large explosions and atmospheric effects. Priroda, v. 46, no. 3, 1957, 31-37. Q4.P8, v. 46

Data are reviewed which indicate that the effect of explosions on general weather conditions is still not established and such an influence is improbable notwithstanding the fact that the products of the explosion, the anomalous ionization of the air as well as the air waves, are observed at extremely long distances from the seats of explosion. Main subject headings are Nuclear physics--radioactivity, particles (airborne)--radioactivity and atomic clouds--physical effects.

199. KHROMOV, B.M. General principles in the treatment of combined radiation affections. Klinicheskaya meditsina, v. 37, no. 4, 1959, 5-11. R91.K376, v. 37

Combined affections are defined as (1) any mechanical or thermal trauma with radiation sickness occurring from any sources of ionizing radiation but without contamination of the wound surface by radioactive agents, and (2) injuries in which the wound surface is so contaminated. In this survey, which is based solely on Soviet source material, reference is made to antihistaminic preparations, to blood transfusion, and to antibiotics. A retroplacental blood preparation somewhat accelerates the healing of contaminated wounds. Main subject headings are Biological sciences--radiobiology, radiation injuries--therapy, and radiation sickness-therapy. Translation: JPRS L-818-N.

200. KHVOROSTUKHIN, I.I., and others. Change in immuno-reactive properties of rabbits upon exposure to x-rays. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 10, 1958, 138. QR1.Z5, v. 29

Results are reported from a study of the influence of exposure to x-rays on the immune state of rabbits injected with skin extract. Complement-fixation tests were carried out with titrated doses of antigen and various dilutions of rabbits' sera. Results are summarized.

201. KHVOYNITSKAYA, M.A. Change of water-salt exchange in radiation affection of rabbits induced with radiophosphorus. Meditsinskaya radiologiya, no. 7, 1959, 88-90. DNLM

201. KIPRIYAN, K., and others. Practical exercises for the norms of the ready for anti-air defense complex. Voyennyye znaniya, no. 10, 1958, 32-34. U4.V874 1958

Article stresses civilian defense training, mentions type of clothing, other precautions to be taken. States that the adult population should have 10 and 20 hour training courses for anti-atomic, anti-chemical, and anti-bacteriological defense.

202. KISELENKO, V.A., and others. The B.M.K. and the morphology of the thyroid gland in x-ray irradiation of animals. Meditsinskaya radiologiya, no. 5, 1959, 38-41. DNLM

The authors attempted to study the relationship between the morphology of the thyroid gland and the disturbances of the BMK as a result of the action of ionizing radiation. Investigations were carried out on white rats weighing 140-200 gms. The animals were subjected to a

single total irradiation by x-rays (at 180 kv, current 10 ma skin-focal distance being 32 cm, filter 0.5 mm copper and 1 mm cluminium, dose rate 37.8 r/min). Six rats received 500 r each, 4 rats-800 each and 11 rats 1000 r each. BMR was determined in 14 control rats. The thyroid glands taken for the microscopic examination were fixated in 10% formalin solution and then embedded in celloidin. The sections were stained with hematoxylin eosin by van Gieson's method. It was established that the BMR is always decreased after irradiation with large doses of x-rays. Dystrophic and necrobiotic changes of various degrees are revealed in the thyroid gland which depend on the dose of irradiation.

203. KISELEV, P.N., and others. Influence of chronic continuous action of ionizing radiation on immunity. Meditsinskaya radiologiya, no. 4, 1959. DNLM

The paper presents studies of the influence of chronic radiocobalt irradiation (low doses) on the state of natural immunity and the process of immunogenesis. The data elucidate to a certain degree the development of changes, due to ionizing radiation, which occur in the humoral immunity. However, the development of these changes is closely linked with disturbance of the cellular immunity. The latter will be the subject of a special report.

204. KISELEV, P.N., and others. Peculiarities in the course of infective processes associated with the action of ionizing radiation on the body. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 10, 1958, 21-29. QR1.Z5, v. 29

An investigation was made of the basic laws of the development of infections in an individual subjected to the action of large doses of ionizing radiation. The sharp increase in the susceptibility of irradiated animals to infection was found to be dependent on a considerable reduction or complete loss of natural immunity, and also on a great increase in the penetrability of the tissues and a reduction in their barrier properties, which open the door to infection. Reaction mechanisms involved are discussed.

205. KISELEV, P.N., and others. Review of the book of V.L. Troitzky and M.A. Tumanyan, "The Influence of ionizing radiation on immunity". Meditsinskaya radiologiya, no. 5, 1959, 91-93. DNLM

206. KISHKOVSKII, A.N. Some data on the lymphatic system change in acute radiation sickness. Vestnik rentgenologii i radiologii, no. 6, 1958, 80-81. RM845.V4 1958

Some 332 experiments were made with 59 rabbits exposed to wholebody irradiation at 2000, 1250, 1000, 800, and 300 r. The data showed that in all cases radiation injuries were accompanied by explicit disturbance in the morphology and function of the lymphatic system.

207. KISLYAKOV, P.D. Voyska svyazi sovetskoy armii (Signal corps of the Soviet army). Moskva, Voyennoye izdatel'stvo, 1955. 212 p. illus. UA945.R9K5

The problem covered in this summary involve the operations of signal troops and the use of signal communication material under conditions of modern warfare. Summary: AF1022826.

208. KLEMPARSKAYA, N.N., and others. Investigation of certain aspects of antibiotic action in radiation sickness. Zhurnal mikrobiologii epidemiologii i immunobiologii, no. 6, 1959, 26-34. QR1.Z5 1959

Authors studied the effect of streptomycin, penicillin, and biomycin on pathogenic bacteria and representatives of the autoflora of the irradiated organism, as well as on the immunobiological reactivity of the latter. It was established that administration of antibiotics prevents the rise of microbic virulence usually observed in the irradiated animals and prevents the development of the hemorrhagic necrotic reaction in the local foci of infection. Antibiotic-resistant cultures appear in irradiated animals treated with antibiotics. The same strains were isolated from the animals to which radioactive substances along were administered (without antibiotics). Antibiotics exercised a pronounced effect on the reactivity of the body- they depressed phagocytosis and adsorptive properties of the tissues, inhibited the development of allergic reactions and in certain conditions were able to cause body sensitization.

209. KLEMPARSKAYA, N.N., and others. Voprosy infektsii, immuniteta i allergii pri ostroy luchevoy bolezni (Problems of infection, immunity, and allergy in acute radiation sickness). Moskva, 1958. [201 p.?] DNLM

Results are reported from a series of studies on laboratory animals of the interrelations between irradiated animals and bacteria. Both auto-infection and infection caused by pathogenic bacteria were studied. The nature of immune and allergic reactions were investigated. Translation: AEC-tr-3767.

210. KLEMPARSKAYA, N.N., and others. Role of infection and the changes of the immunological reactivity in the development of hemorrhagic syndrome of the irradiated organism. Meditsinskaya radiologiya, no. 10, 1959, 82-84. DNLM

211. KLEMPARSKAYA, N.N., and others. Use of certain immunological and microbiological methods for the study of the state of the body's reactivity in radiation affections. Meditsinskaya radiologiya, v. 4, no. 3, 1959, 70-76. DNLM

Content of lysozyme in the saliva and gastric juices. Bactericidal properties of saliva. Phagocytic and adsorptive properties of cells of saliva. Bactericidal properties of the skin. Phagocytic activity of blood neutrophils in relation to a live culture of Staphlococcus albus "Lepin" Cytolysins in the blood. Composition of mycroflora of the skin. Microflora of the mouth. Microflora of the feces. Main subject headings are biological sciences--radiobiology, radiation sickness--pathology, radiation injuries--pathology. Translation: JPRS: L-864-N.

212. Knowledge of anti-atomic defense is necessary for each soldier. Krasnaya zvezda, 10 Jan 1957, col. 1-2. U4.K78 1957

The article points out the importance of training personnel against atomic attack under all weather conditions. Translation: AF1091960.

213. KOLOMIN, G. Students-public instructors in anti-air defense. Voyennyye znaniya, no. 10, 1958, 36. U4.V874 1958

The author is a member of the DOSAAF Committee of Faculty of the Natural Sciences of the Rostov Teachers Institute.

214. KONSTANTINOVA, V.V., and others. Nucleic acid content and synthesis in liver during subacute poisoning by plutonium. Voprosy meditsinskoy khimii, v. 4, 1958, 339-344. RS402.V8, v. 4

A plutonium nitrate solution (0.02 microcuries per g of body weight) was injected intraperitoneally into rats to study the effect of plutonium on the content and synthesis of nucleic acids in the rat livers. Appropriate tests were conducted 1 to 2 weeks, and 1 to 2 months later. Injections of radioactive phosphorus were administered 4 hours before sacrificing the animals. Tables and graphs present experimental data. Results indicate the following: one or 2 months after the plutonium injection the amount of RNA was increased by approximately 25% on the average. The DNA content in the liver tissue was decreased

(26% below normal on the average) starting with the second week and all through the experimental period. After plutonium poisoning, the permeability of hepatic tissue toward radioactive phosphorus was increased. The rate of RNA, and DNA synthesis was accelerated almost during the entire experimental period.

215. KOPORULIN, N.V., and others. Development of bone callus after closed fractures of tubular bones in radiation sickness. Voyenno-meditsinskiy zhurnal, no. 7, 1958, 56-58. RC970.V55 1958

The process of formation of bone callus in rabbits suffering from radiation sickness was suppressed during the first 5 to 15 days after fracture. Translation: JPRS 870-NY.

216. KOPYLOVA, E.N. The effect of chronic gamma irradiation on the ovaries of mice. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, v. 23, no. 5, 1958, 592-596. AS262.A6245, v. 23

Adult virgin mice weighing 18-20 g were subjected to daily radiation of from 0.05-0.4 r for 16 mo. A quantitative decrease of hollow, developing, primordial, or atresic follicles was demonstrated, being particularly pronounced in the 0.4-r group. Degenerative changes of ovarian tissues and of follicular apparatus were most marked in the 0.4-r group. In spite of extensive tissue injury to individual ovaries, a number of follicles were structurally normal. Neoplastic growth was not stimulated, although in some cases there was proliferation of germinal epithelium of leuteal stomata. Body weight was not affected. Main subject headings are Biological sciences--radiobiology, gamma radiation--physiological effects and ovaries--effects of radiation.

217. KOPYLOVA, E.N. The effect of chronic irradiation upon blood in mice. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 4, 1959, 930-932. AS262.S3663, v. 124

The effects of chronic irradiation by small doses of γ rays on the peripheral blood in animals were studied. Daily exposures to doses of 0.05 r induced mild leukopenia after 3 months, and doses of 0.4 r induced a sharp drop in leukocytes after 6 months daily exposures to 0.1 r induced regenerative changes in the white blood cells following a year of exposure. No changes were observed in red blood.

218. KORABLEV, M., and others. MPVO v sel'skoy mestnosti (Local antiaircraft defense in rural localities). Moskva, 1959. chap. 1-4, p. 1-200. UA929.R9K63

The authors deal with a complexity of problems the solution of which is required for the organization of local antiaircraft defense in the kolkhozes, sovkhozes, machine-tractor stations, radio-telegraph stations, various enterprises and institutions located in rural areas. Information concerns methods of invasion and attack available to the armies of imperialistic states; infectious diseases of animals which can be caused by bacteriological warfare; describes these agricultural pests and methods of combating them; outlines the principles of organizing anti- bacteriological defense; it recommends a number of fire-fighting, sanitation-hygiene, and veterinary measures; contains advice on the protection of foodstuffs, forage and fodder for animals; and water against contamination by radioactive and poisonous substances, disease producing microbes and toxins; it lists the rules to be observed by the population under the direction of the local antiair defense. The book is designed for rural readers, and may be used for the study of antiair defense. Translation: JPRS L-1852-DC.

219. KORNILOV, I., and others. Antiair defense propaganda by means of visual persuasion. Voyennyye znaniya, no. 1, 1959, 32. U4.V874 1959

The Kharkov turbo-generator plant im. S.M. Kirov displays visual antiair defense propaganda for its workers. There are arranged stands, shields, show-cases, colored posters and transparent pictures devoted to (PVO) antiair defense propaganda. A special instructional stand was built to help workers prepare themselves for the test "Ready for antiair defense". This stand has the following colored posters: "The striking action of the atom bomb", "Population action after the signal of MPVO (local antiair defense)", "Individual means of protection from nuclear (atomic) weapons", and others. This stand was constructed by members of the defense mass action under supervision of the DOSAAF committee head, reserve officer O. Trikazov. There are also instructional class-rooms, which are well equipped. On their walls are the following posters: "Striking action of atom bomb explosions", "Bacteriological weapons", "Combatant radio-active poisoning substances and protection from them", "Collective means of protection from atomic weapons." The PVO instructional circles use film slides and motion pictures. The photographs of the outstanding members of mass defense are on a big stand, which is located in the committee room of the DOSAAF plant organization.

220. KOROGODIN, V.I., and others. Biological effects of ionizing radiation, aging processes, and life expectancy. Meditsinskaya radiologiya, v, 3, no. 4,1958, 79-85. DNLM

Discusses the testing of nuclear weapons and the aftermath being such a danger to the people. The authors trace the works in this field by other scientists.

221. KOROGODIN, V.I. Forms of inactivation of yeast cells by ionizing radiations. Biofizika, v. 3, no. 3, 1958, 206-214. QH505.A1B53, v. 3

Yeast cells incubated at 30°C on solid media after γ-irradiation show three periods of delay in division which differ in the way they vary with dose, in reversibility, and in distribution within the irradiated population. Three types of inactivation are found: without prior division, after 1 and after 4 to 7 divisions. The distribution of these forms over the population depends on the dose. The late inactivation effect and recovery are not directly related to the ploidy and are found in haploid and diploid strains, at least if reasting cells are γ-irradiated. It is supposed that the wave-like development of damage is a feature of the reaction to ionizing radiations shown by many unicellular organisms, as well as by multicellular ones.

222. KOROGODIN, V.I., and others. Relationship between post-irradiated restauration and the density of the suspension, temperature and oxygen tension. Biofizika, v. 4, no. 2, 1959, 224-227. QH505.A1B53, v. 4

This paper demonstrates the results of the study of the relationship between the ratio of post-irradiation restauration of resting yeast cells and the density of their suspension, the temperature and oxygen tension. There are three figures.

223. KOROLEV, I.F. The MPVO (Local antiaircraft defense) of Moscow during the Great Patriotic War. Za oboronu, no. 23-24, 1946, 10. U4.V874 1946

The author, Lt. Gen. I.F. Korolev, Chief of the Moscow MPVO, states that this organization did tremendous work preceding and during the Great Patriotic War and is now (1946) steadily working for the further development of the local PVO, based on the experience amassed during the years of the War. There was day by day training of special crews for various offices and large industrial enterprises. The Central and Moscow Soviets of the Society for Promotion of USSR Defense and Aerochemical Construction aided in the training.

In the anti-gas defense of the city new methods to detect poisonous substances were devised and prepared. The author also mentions that large scale conferences were held by the Central Administration of the MPVO and the MVD of the USSR. The participating members made many new and valuable contributions toward improving the city's MPVO. It can be noted here that it appears these conferences were held after the war. Translation: AID SIR-1439.

224. KOROSTELEV, V.YE. Participation of army and navy physicians in the specific prophylaxis of infectious diseases. Voyenno meditsinskiy zhurnal, no. 3, 1955, 46-48.
RC970.V55 1955

Active participation of the army and navy physicians in the study of the effectiveness of the means of specific prophylaxis, with the aid of and in consultation with epidemiologists and microbiologists of the SEO and SEL, will exert great influence in enhancing the role of the medical corps of the army and navy in all the scientific research of the medical service. Translation: JPRS L-521-N.

225. KOSMARSKAYA, YE.N. Effect of single x-ray irradiation on the growth of cerebral capillaries. Meditsinskaya radiologiya, no. 1, 1959, 35-41.
DNLM

The problem of a single x-ray irradiation on the process of development of cerebral capillaries was studied. Experiments were performed on 31 white rats, aged from 1 to 32 days. The rats were irradiated with x-rays in the dose of 250 r on the 2nd, 4th, 7th, 14th, and 32nd day after birth, i.e. at different stages of development of brain capillaries. The length of life after the irradiation ranged from 5-6 hours to 3 months. Besides, 13 rats were irradiated at the age of 14 days (500 r). Twenty rats aged from 1 to 60 days served as control.

226. KOSTYANOVSKIY, R.G., and others. A comparative analysis of the biological effect of ionizing radiation and methylbis- (β -chlorethyl)-amine (HN2) within a large range of doses. IN: Akademiya nauk SSSR. Doklady, v. 127, no. 6, 1959, 1294-1296. AS262.S3663, v. 127

Characteristics of injuries inflicted by 1 to 2000 mg-kg doses of HN2 (methyl-bis (β -chloroethyl) amine) were studied in 568 mice. The hydrous solutions of HN2 were introduced intraperitoneally. Logarithmic graphs correlating the lethal effects of high radiation doses and HN2 show great similarity; the graphs coincide at the point of minimum lethal doses (750r and 4 mg-kg). The basic similarities in the lethal effects also indicate a similarity of mechanisms inducing the injuries.

227. KOSYAKOV, K.S. Metahemoglobin formation in radiation sickness. Meditsinskaya radiologiya, no. 10, 1959, 71-74. DNLM

228. KOSYAKOV, K.S. The effect of x-rays on the content of lactic acid, adenosintriphosphoric acid, creatine phosphate, and non-organic phosphorus in rat's brain. Meditsinskaya radiologiya, no. 10, 1959, 79-80. DNLM

229. KOTEV, G. New military toxic agents with general toxic and resorptive action. Armeyski pregled (Bulgaria), no. 4, 1958, 83-89.

Discussion of chemical warfare agents and their toxic effects. The toxic substances here discussed are tabun, sarin, soman, and diisopropylfuorophosphate. This paper, which appeared in a military journal, appears to be addressed to non-medical personnel. Main subject heading- Biological sciences--toxicology. Translation: JPRS L-563-N.

230. KOTLUKOV, K. Anti-atomic defense of the population. Voyennyye znaniya, no. 3, 1957, 39-40. U4.V874 1957

Above title is the name of a Soviet civilian defense film. The film depicts the peaceful life of the Soviets. It further explains the structure of the atom bomb, the atom bomb itself, aerial alarm, means of protection, atomic explosion, lifesaving, etc. The article has some film clips in photo form showing people digging shelters, and types of protective clothing worn by persons before another group in a classroom. Members of the class are adults who are wearing wide straps, which appear to be part of gas mask packs. The film is recommended for students who are studying the following themes: Atomic and chemical weapons; Instructions for constructing shelters; How to black-out homes, and Rules telling people how to conduct themselves after alert signals by the MPVO.

231. KOVTUNOVICH, L.G. Influence of external or internal irradiation on the efficacy of the antiperfringens serum. Meditsinskaya radiologiya, no. 7, 1959, 59-62. DNLM

In experiments on white mice subjected to external (x-rays) or internal (P^{32} administration) irradiation in lethal or sublethal doses the author studied the efficacy of the antiperfringens serum, which was introduced immediately or 1-4 hours following the intravenous injection of of IDCL Bac. perfringens toxin. As was established the efficacy of the anti-perfringens serum did not change after a preliminary irradiation, being mainly dependent upon the duration

of the interval between the introduction of the toxin and the use of the serum.

232. KOZLOVA, A.V. Diagnostic and therapeutic use of radioactive isotopes in the clinic. Meditsinskaya radiologiya, no. 1, 1959, 12-18. DNLM

233. KOZLOVA, N.V. Effect of local fractionated exposure to x-rays on the course of regeneration process in striated muscular tissue. IN: Akademiya nauk SSSR. Doklady, v. 127, no. 5, 1959, 1121-1124. AS262.S3663, v. 127

Experiments were carried out with 80 white male mice of identical age and weight exposed to local fractionated x-ray doses (total dose 3000r). The left back leg of one group of animals was exposed to 300r three times a day for a month wile the other group was exposed to 100r under the same conditions. The first day after accumulation of 3000r the legs of both groups were impaired. Various stages of regenerative processes in striated muscular tissue were studied. The results show that local fractionated irradiation depressed the post-traumatic regenerative ability of the striated muscular tissue. It was also found that irradiation induced depressions of regenerative processes are caused by radiation damage to muscle tissue.

234. KOZNOVA, L.B. The influence of the radiation dose on the biological effect. Meditsinskaya radiologiya, no. 5, 1959, 48-52. DNLM

The influence of the dose of radiation on the biological effect was studied by comparing the injurious effect of x-rays (1.3 r/sec and 130 r/sec). The experiments were staged on 768 white male rats. The irradiation was carried out on a specially constructed four-tube x-ray apparatus. Doses from 390 to 13000 r were employed. In a definite range of doses (from 390 to 780 r) a lower biological effect of radiation was revealed. The author is of the opinion that high doses (910 r and higher) act differently on the biological effect of irradiation.

235. KRASIL'NIKOV, A.P., and others. Experimental anthrax infection in irradiated animals. Meditsinskaya radiologiya, no. 6, 1959, 56-61. DNLM

The experiments were staged on white mice. The authors studied the following: the natural resistance of irradiated animals to experimental infection with Bac, anthracis in dependence to the terms of infection following irradiation, the doses of irradiation and the site of introduction of the infectious matter; the time of the onset and the duration of bacteremia and dissemination of various organs; quantitative characteristic of bacteremia and accumulation of

bacilli in the liver. The investigations revealed that single total sublethal irradiation (342 r) of white mice lowers the resistance of the animals to anthrax infection. The resistance falls already in the first 24 hours, the decrease is considerably marked in 3 days, while the maximum is reached on the 7th day. The resistance is fully restored 12-21 days following the action of ionizing radiation. The diminution of resistance of an irradiated organism to anthrax infection is more pronounced in experiments with massive x-ray irradiation (550 r). In subcutaneous and intraperitoneal infection there is seen a drop of the resistance of the organism of white mice subjected to the action of ionizing radiation. In intranasal and peroral modes of infection no noticeable difference in the irradiated and control animals was observed. Experimental anthrax infection at the period of radiation sickness development occurs from considerably lesser doses of the infectious agent. Moreover, the infection develops 1-1 1/2 days sooner, runs a course with dissemination of a large number of organs and accumulation in the latter of vast numbers (in comparison with control animals) of bacilli, giving a considerably larger lethality than in the control animals.

236. KRASNYKH, I.G. Importance of luminexcent microscopy of the bone marrow in the experimental study of radiation reactions. Meditsinskaya radiologiya, no. 3, 1959, 49-52. DNLM

In experiments staged on white rats the author studied the early changes developing in the animal organism as a result of the action of gamma-rays in doses of 100 r and lower. The determination of changes, caused by doses of penetrating radiation, were carried out (in 3, 6, 24 hours after the irradiation) for comparison by two methods: 1) study of the peripheral blood (determination of the leukocyte count and that of the leukocytic formulas); 2) luminescent microscopy of the bone marrow by the method of M.N. Meisel and associates. These investigations show that the method of luminescent microscopy of the bone marrow has definite advantages over the other method in the assessment of early radiation reactions, developing due to the action of low doses of gamma-rays. The superiority of this method is especially obvious in combined action (injury plus irradiation), when the wound obscures the radiation reactions of the peripheral blood. The high sensitivity and objectiveness of this method gives wide perspectives of its use in experimental practice.

237. KREPS, E.M. Problem of radioactive contamination of oceans and marine organisms. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 3, 1959, 321-334. AS262.A6245 1959

A review is given based on the materials of the second Geneva International Conference on the use of atomic energy for peaceful purposes held in September 1958. Disposal of radioactive wastes and contamination of oceans and of its inhabitants are discussed, particularly in connection with nuclear and hydrogen bomb tests.

238. KRIGER, YU.A., and others. Changes in the physicochemical properties of erythrocytes due to gamma-ray effects. Biofizika, v. 3, 1958, 711-716. QH505.A1B53, v. 3

Human erythrocytes subjected to gamma rays (a dose of 42 kr, 700 rpm/min) then incubated, exhibit an increase of low-frequency electrical resistance, which is substantiated by the swelling of the erythrocyte stroma without rupture. Human erythrocytes subjected to a dose of 84 kr exhibit insignificant amounts of electroconductivity which is connected with definite disturbances in submicroscopic structure of the erythrocyte. Irradiation of erythrocytes without subsequent incubation causes increased ion migration into the electron-free medium, as compared with ion migration of control erythrocytes. Suspensions of irradiated erythrocytes in distilled water exhibit a gradual decrease of their low frequency resistance, which is a phenomenon similar to stroma porosis.

239. KRIGER, YU.A., and others. Effect of roentgen and gamma-rays on the unilateral permeability of the skin in the frog. Biofizika, v. 4, no. 2, 1959, 209-214. QH505.A1B53, v. 4

240. KRIGER, YU.A., and others. Study of the properties of erythrocytes by the method of striction. Meditsinskaya radiologiya, no. 10, 1959, 26-30. DNLM

With the aid of the toxicometric method, elaborated by B.N. Tarusov, the possibility of formation of toxic products in the irradiated biosubstrate was studied. It was established that when muscular brei is placed into an irradiated suspension of rat's erythrocytes there occurs an inhibition of the striction not attended, however, by the appearance of peaks on the experimental curve. The appearance of "peaks" on the latter, indicating the presence of toxic substances, was recorded only in condition of a one-hour incubation of the biosubstrate carried out immediately after the

irradiation. The number and amplitude of peaks rose consecutively after 9.24 and 48 hours following the irradiation with a simultaneous decrease of striction inhibition. After 72 hours there was noted a disappearance of "peaks" and elimination of striction inhibition. The presence of peaks on the curve when the muscular brei is placed into the suspension serves as a testimony of the transfer into the latter of toxic products, formed upon the irradiation of erythrocytes. The appearance of the toxicity is apparently characteristic only for radiation injury of erythrocytes: it is observed neither in hypotonic hemolysis nor in saponim hemolysis. On the basis of data obtained and on that of previous electrono-optic and electrometric investigations a supposition is made on the relation of toxic substances with phospholipids and products of their disintegration, occurring during the action of γ -rays on the erythrocytes.

241. KRITSKIY, G.A. Effect of x-irradiation on hypoxanthine biosynthesis and on glycine metabolism in pigeon liver. Biokhimiya, v. 23, no. 1, 1958, 87-91.
QH301.A343, v. 23

It was shown that in liver homogenates from irradiated (2000 r) pigeons, hypoxanthine synthesis, as judged from the incorporation of glycine-1-C^{14}, was slightly increased immediately following irradiation, and greatly decreased the following day. C^{14} incorporation from glycine-1-C^{14} into malic, succinic, and fumaric acids fell sharply immediately after irradiation and remained low throughout. Radiation damage of purine biosynthesis is largely due to the inhibition of the metabolism of substrates concerned in purine biosynthesis. The high resistance to radiation of the pigeon, as compared with the majority of mammals, has been demonstrated.

242. KRONGAUZ, A.N. Current tests of dosimetry in radiation therapy. Vestnik rentgenologii i radiologii, v. 34, no. 3, 1959, 52-59. RM845.V4, v. 34

The biological effect taking place in the medium as the result of irradiation is determined by the absorbed irradiated energy and its micro and macro distribution in the tissue under irradiation. The quantitative evaluation of irradiation is effected by the measured dose contained in the air and expressed in roentgen units. The necessity to quantitatively evaluate absorbed irradiated energy made it imperative to introduce the so-called absorbed dose with "rad" as the unit of measurement. The latter was introduced into the new standards in addition to the roentgen units and units of new radio standards. To compare the effects of different types of ionizing radiation the absorbed irradiation activity doses are to be taken as units of evaluation. Determination of the absorbed doses

is carried out by taking the dose measured in the air, and with the aid of tables for conversion roentgens into rads. Apart from absorbed doses the local effect is also greatly influenced by integral doses received by the body as a whole.

243. KROTKOV, F.G. Voyennaya gigiyena (Military sanitation). Moskva, Voyennoye izdat. M-Va obor. SSSR. 1959. 366 p. UH600.K7

Reflects the present state of Soviet accomplishments in hygienics and sanitation. It explains in detail the duties of military doctors in sanitary and hygienic protection of personnel in peace and in war, and considers the various measures aimed at prevention of disease based on the creation of the most favorable working and living conditions for personnel in accordance with the type of activity in which the troops are engaged. Problems of food hygiene, water supply, aeronautical hygiene, hygiene for armored troops, radiation hygiene and protection of air, food and food products, water and water-supply sources, and other evironmental objects from radioactive toxic matter and bacteriological agents. It also explains problems arising in radioactive decontamination, degassing, sanitary processing, and in insuring that all necessary measures have been taken. There are many tables and diagrams. No personalities are mentioned.

244. KROTKOV, F.G. Problems of our journal. Meditsinskaya radiologiya, v. 3, no. 4, 1958, 3-6. DNLM

This article is more of an editorial about the types of articles that are found in the journal. The editorial does bring out the information that it is no longer a journal that gives information of medical clinical aspects of radiology but because of the changing times it is necessary to tell of the effects the nuclear age will have on the population. It discusses the biological effects of natural radiation and the radioactive contamination of the environment in this nuclear age.

245. KUDRITSKIY, YU.K. The 38th meeting of the Leningrad inter-institute seminar on radiobiology and physics of penetrating radiations at the Central research institute of medical radiology of the Ministry of public health of the USSR. Meditsinskaya radiologiya, no. 6, 1959, 94-95. DNLM

246. KULIKOVA, V.G. Penetration of Sr, Cs, Ru, and Fe through the placental and milk barriers. Meditsinskaya radiologiya, no. 5, 1959, 23-27. DNLM

Sr^{90}, Cs^{137}, Ru^{106}, and Fe^{59} penetrate from the mother's body into the fetus through the placenta. It also gets into the offspring with milk during the period of lactation. As should be expected, different elements act in a different way as to the absolute quantity of penetration from the mother into the fetus and into the milk, as well as regarding the quantitative relationship of both ways of penetration. Of great importance is that all the elements which were tested enter the fetus in much lower quantities than in the later stages of pregnancy (in case of Cs, Ru, and Fe during the first 8-10 days, and within the first 166 days in case of Sr). The penetration of labelled atoms through the placental barrier is determined mainly by the intensity of growth and organogenesis of the fetus. Sr enters the fetus and milk from the maternal body also during the second pregnancy, as well as when it is incorporated for a comparatively long time prior to gestation. Considerable penetration of Sr and Fe through the placental and milk barriers is associated with its lesser deposition in the organs and tissues of rats in comparison with control.

247. KUO, CHING-HUA. Direct application of amnion tissue dressing in treatment of radiation ulcer of the skin. Chung hua fang she hsueh tsa chih, no. 6, 1958, 444-445.

Gives brief outline of experiments made according to principles of Filatov. Conclusions indicate positive results with ulcers without secondary infection. Main subject headings are biological sciences--radiobiology, skin--effects of radiation, radiation injuries--therapy, membranes-therapeutic effects. Translation: JPRS L-1639-D.

248. KUO, CHING-HUA, and others. Initial observation on acupuncture-moxibustion therapy in treatment of radiation reaction. Chung hua fang she hsueh tsa chih, no. 6, 1958, 401-402.

Fifty-five patients receiving radiation therapy for neoplasms of cervix, breast, or nasopharynx were treated for local radiation injuries by acupuncture and moxibustion in combination, or by acupuncture alone. It is assumed that the mechanism underlying radiation injury is one of cortical stimulation and inhibition, and that acupuncture regulates the activities of the cortex. Acupuncture therapy produced quick and satisfactory results: its use should make continuation of radiation therapy to a desired dosage possible in cases of local radiation injury. Main subject headings are Biological sciences--radiobiology, radiation injuries therapy. Translation: JPRS: L-1638-D.

249. KUO, MO-JO. Asia without nuclear weapons. Peking review, no. 7, 15 Apr 1959, 8.

This is a question and answer type article in which Kuo, Mo-jo, chairman of the China Peace Committee and vice-chairman of the World Peace Council, gives his views on a denuclearized zone in Asia and the Pacific Area. In a verbal attack against the United States, he emphasizes the dangers incured by U.S. aircraft carrying nuclear weapons on patrols over Europe. While playing on the experience Japan has had with nuclear warfare, he stresses the use of public opinion to insure a denuclearized zone in Asia and the Pacific. He also states that the U.S. has shipped nuclear weapons to Japan, South Korea, and Taiwan.

250. KUZIN, A.M. Biological effect of ionizing radiation in the light of contemporary opinions on the nature of D.N.A. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 3, 1957, 273-284.
AS262.A6245 1957

Basic biological reactions induced by exposure to ionizing radiation are reviewed in the light of contemporary opinions on the nature of nucleoproteins and complex systems of protein enzymes. The influence of radiation on high-polymer nucleoproteins and nucleic acids and the radio-induced formation of abnormal crystals in irradiated nucleoproteins, the influence of radiation exposure on the synthesis of specific protein enzymes which lead to related disturbances in exchange reactions, and radioinduced changes in osmosis and in the sorption of enzymes at the surface of microstructures as a consequence of radioinduced depolymerization of the high-molecular complex proteins of live tissue are discussed. Translation: AEC-tr-3347.

251. KUZIN, A.M., and others. Functional radiosensitivity of chloroplasts. Biofizika, no. 3, 1958, 325-331.
QH505.A1B53 1958

The effects of ionizing radiation on the photosynthetic activities of chloroplasts in intact leaves from Tradescantia, tobacco, and bean have been studied. The photosynthetic activity was determined from the rate of uptake of $C^{14}O_2$. The chloroplasts have been shown to be functionally highly radiosensitive. Twenty kr produced no effect on any of the plants, but 50 kr affected the Tradescantia. Leaves are more radiosensitive and show reduced activity. The activity reduction became greater with the passage of time and was very marked at 24 to 48 hr after irradiation. The chloroplasts in young leaves were more radiosensitive than those in old ones. The low radiosensitivity of the photosynthetic activity in chloroplast is considered to be due to the low nucleic acid content. Nucleic acid determinations on pure isolated chloroplasts show that more nucleic acid is present in the more radiosensitive young leaves.

252. KUZIN, A.M. Radiobiological investigations at the Biological institute of the Academy of Science of the USSR in 1956. Atomnaya energiya, v. 3, no. 8, 1957, 178-180.
QC770.A83, v. 3

The following main problems were investigated: what physical-chemical structural changes occur in the tissue shortly after irradiation; the minimum influence exercised by radiation on the central nervous system.

253. KUZIN, A.M., ed. Ocherki po radiobiologii (Reviews on radiobiology). Moskva, 1956. 312 p.
QH652.A53

Separate abstracts have been prepared on four sections of this report. Contents: Biochemical fundamentals of the biological action of ionizing radiation by A.M. Kuzin. The Nervous system and ionizing radiations by N.N. Livshits. Experimental study of the action of ionizing radiations on mammals by N.I. Shapiro. Morphological changes of the nucleus and chromosomes under the influence of various kinds of radiations by L.P. Breslavets. Translation: AEC-tr-3353.

254. KUZ'MIN, D.S. Blood transfusion in radiation sickness (experimental research). Meditsinskaya radiologiya, no. 6, 1959, 82-84. DNLM

Experiments were staged on 40 dogs (17 control). All animals were subjected to total x-ray irradiation (500 r) performed on two paired roentgen apparatuses of the RUM-3 type (185 kv, 15 mZ, filter-0.5 mm Cu, distance-80 cm, dose power-10.0-11.5 r/min). Two hours following the irradiation transfusion of blood from dogs-donors to experimental dogs was performed (the amount being 1 1/2 - 2 1/2 and even 3 times over the blood volume of the dog-recipient). Of the 17 control dogs 14 died. Of the 23 experimental dogs 13 survived, 10 died; of the latter 2 succumbed due to radiation sickness. Thus, the use of blood transfusion in radiation injury considerably increases the survival rate of animals.

255. KUZNETSOV, V.I. Functional condition of arterial blood vessels in acute radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 36-40. DNLM

The tone of both elastic and muscular blood vessels was studied in acute radiation sickness. It was established that the tone of the arteries of the muscular type is greatly increased during radiation sickness. A suggestion was made on the significant of the changes in the arterial tone in the development of hemorrhages. The writer is associated with the Science-research laboratory of the Military-medical academy imeni S.M. Kirova by the order of Lenin.

256. LAGUNOVA, I.G. Achievements of Soviet roentgenology to the 40th anniversary of the October revolution. Vestnik rentgenologii i radiologii, v. 32, no. 5, 1957, 3-9. RM845.V4, v. 32

A review is given of the development in roentgenology in the USSR. Statistical data are given on the number of laboratory units and doctors by states of the union.

257. LAPTEVA-POPOVA, M.S. Effect of small doses of ionizing radiations on the development of experimental leukaemia in dogs. Problemy germatologii i perelivaniya krovi, v. 3, 1958, 74-86. DNLM

Following the daily exposure of dogs to small doses of x-rays a proportion of the animals developed leukaemia from 2.5 to 5 years after the beginning of irradiation. The diagnosis was established on the basis of changes in the peripheral blood and bone marrow. The most significant changes are in the white cell differential count and the myelogram. The number of leucocytes hardly varies. Obvious manifestations of the disease are preceded by delay of cell maturation and a large increase in the more immature forms in the bone

marrow; and in the peripheral blood by the presence of immature bone marrow cells and a considerable number of erythroblasts, a rise in the number of basophils and sharp variations in the number of thrombocytes.

258. LARIONOV, V. Maneuver in defensive. Krasnaya zvezda, 10 Jan 1957. U4.K78 1957

The author outlines the role of the maneuver in a modern defensive combat, in condition of the use of mass destruction weapons. Abridged translation; AF 108967.

259. LEBEDEVA, YU.A., and others. Bakteriologicheskoye oruzhiye inostrannych armiy i zashchita ot nego (Bacteriological weapons of foreign armies and defense against them). Moskva, DOSAAF, 1957. 119 p. UG447.8.L4

Book stresses information covering possible biological warfare. Translation: JPRS L-451-N.

260. LEBEDINSKIY, A.V., and others. Biological effect of ionizing radiation in small doses. Part 1. Atomnaya energiya, v. 5, no. 3, 1958, 310-316. QC770.A83, v. 5

261. LEBEDINSKIY, A.V., and others. Biological effect of ionizing radiation in small doses. Part 2. Atomnaya energiya, v. 5, no. 3, 1958, 316-320. QC770.A83, v. 5

262. LEBEDINSKIY, A.V. Biological effect of radiation. Atomnaya energiya, v. 6, no. 2, 1959, 187-199. QC770.A83, v. 6

A Soviet scientist informs on problems of radiobiology as presented at the Conference on Peaceful use of Atomic Energy, Geneva, 1958. Topics discussed in the article are: research of radiation effects on proteins, nucleic acids and live cells, especially the influence of living organisms. Reflective changes caused by the nervous and endocrine systems. Effects on embryos and mutations. Chemical protection against radiation. Anti-radiation therapy and prophylaxis. Use of cysteamine S^{35}. Reduction of susceptability to radiation in living organisms.

263. LEBEDINSKIY, A.V. Vliyaniye ioniziruyushchey radiatsii na organizm zhivotnogo i cheloveka (Effect of ionizing radiation on the organism of man and animal). Moskva, 1957. 55 p. (Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya VIII, no. 35, 36)

264. LEBEDINSKIY, A.V., and others. On the participation of the vegetative nervous system in the organism's reaction to the effect of ionizing radiation. Meditsinskaya radiologiya, no. 7, 1959, 3-9. DNLM

The article reviews and generalizes literature data and the results of the authors' investigations on the problem of the participation of the vegetative nervous system in the reaction of the organism to irradiation. The cited data serve as evidence of the peculiarities of adaptational reactions of the vegetative nervous system in conditions of ionizing radiation in contradistinction to those with the action of other factors of the external environment. These specific features are associated in the first place with functional disturbances in the vegetative nervous system itself, its central and peripheral formations and, in the second-with disturbance of mechanisms of its inclusion into the reaction of the organism. Here there is a possibility of a direct action of radiation on the centers, the absence of mobilization of the cortical component in effecting the vegetative reflexes, disturbance of neuoendocrine mechanisms. As a result of the above the adaptional reactions of the organism to the action of ionizing radiation proved inferior, and occasionally perversed.

265. LEBEDINSKIY, A.V., ed. Sovetskiye uchenyye ob opasnosti ispytaniy yadernogo oruzhiya (Soviet scientists concerning the dangers of nuclear-weapon tests). Moskva, 1959. 117 p.

Contents: Preface, by I.V. Kurchatov. The Danger of nuclear weapons tests, by A.V. Lebedinskiy. The book by E. Teller and A. Latter, Our Nuclear Future, by O.I. Leypunskiy. Radioactive carbon of nuclear explosions and non-threshold biological effects, by A.D. Sakharov. Contamination of the biosphere in the environs of Leningrad by products of nuclear explosions, by V.P. Shvedov, L.I. Gedeonov. Entry of radioactive strontium into plants and accumulation of it in the harvest of various agricultural crops, by V.M. Klechkovskiy, I.V. Gulyakin. Research on the content of radioactive strontium in the atmosphere, soil, food products, and human bones, by B.V. Dubinin. Cytogenetic consequences of the action of radiation upon the spermatogenesis of monkeys, by G.G. Tinyakov, M.A. Aresen'yeva. Blastomogenic action of radioactive strontium, by N.A. Krayevskiy. Main subject headings are Biological sciences--radiobiology, atomic bomb-tests--hazards, particles (airborne)--radioactivity, radiobiology. Translation: JPRS 719-D.

266. LEBEDINSKII, YU.G. Biological effects of small ionizing radiation doses. Atomnaya energiya, v. 5, no. 3, 1958, 310-320. QC770.A83, v. 5

Biological effects of small doses of ionizing radiation in short or continuous exposures are analyzed.

267. LEBEKHOV, P.I. On burns of the cornea in experimental radiation disease. Voyennoye-meditsinskiy zhurnal, no. 4, 1958, 12-15. RC970.V55 1958

Burn processes in the tissues of the eye in radiation diseases of different degrees were investigated. Experiments on 41 rabbits were carried out. About 2 to 3 days after radiation, most of the animals reacted with noticeable clinical appearances, such as adynamia, diarrhea, leukopenia, and food refusal accompanied by a loss in weight.

268. LENGEROVA, A. A method for evaluating the effects of ionizing radiation on micro-organisms. Folia biologica (Praha), v. 1, 1955, 54-61. QH301.F6, v. 1

If a drop of a suspension of infusoria is placed in an electric field, the organisms move toward the cathode, their paths of movement lie in the horizontal levels, they do not cross, and the speed of movement can easily be compared. With a suitable number of photographic recordings it is possible to determine the average speed of movement for each tested specimen. The effects of radiation and the influence of protective substances on the speed of movement were studied on pure cultures of Tetrahymena gelei. Results are discussed.

269. LESHKOVICH, L.I. Action of x-rays on the virulence and antigenic properties of pasteurella pestis. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 2, 1958, 34-38. QR1.Z5, v. 29

Forty-three days after their first exposure to x-rays 6 out of 9 virulent strains of P. pestis lost their virulence for mice in a dose of 100,000 organisms: after 9 months a dose of 20,000 million of 7 of the strains was required to cause death in guinea pigs. The virulence of one strain was tested in guinea pigs 1 month after the third exposure to radiation; one-half of the experimental animals survived a dose of 1500 million organisms which indicates that the virulence of other strains may be reduced earlier. The vaccine strain was subjected to radiation under the same conditions as the virulent strains; this treatment did not reduce its antigenicity, which proves that x-rays have no destructive effect.

270. LETAVET, A.A. Hygienic problems in radiology. Meditsinskaya radiologiya, v. 2, no. 1, 1957, 11-22.
DNLM

Gives problems encountered by personnel engaged in this work, and populace living close to the atomic operations such as power plants. Some methods of removing hazards, and preventing accidents are described. Main subject headings are Biological sciences--radiobiology, radioactive substances--pathological effects. Translation: JPRS L-877-N.

271. LEVIN, M.YE., and others. Zashchita ot sredstv massovogo porazheniya (Defense against agents of mass destruction). Moskva, Uchpedgiz, 1958. 181 p. illus.
UA926.L38

Book is intended for DOSAAF public instructors on anti-air defense (PVO). Basic information concerning atomic, chemical, and bacteriological weapons and measures for individual and collective protection. Protection of food, water, and forage from contamination by chemical, radioactive, and bacteriological agents. There are 131 figures included which show people how to protect themselves. Gives methods of use of chemical, radiological, and bacteriological warfare agents or weapons. Summary of main subjects are Engineering--safety, chemical warfare agents--countermeasures, radiological contamination--countermeasures, biological warfare agents--countermeasures and radiation--safety measures. Chap. 10, p. 117-120 summarized: "The Detection of War Gases:" Descriptions are given of the simplified indication instrument and a similar model called the Chemical Reconnaissance Instrument. They are designed to detect mustard gas, nitrogen mustard gas, prussic acid, phosgene and diphosgene, halogeno-cyanogens, and Sarin and other organe-phosphorus war gases which are included in the armament of the capitalist States. This chapter was written by G.A. Malinin. Main subject heading are Engineering--chemical, and Chemical warfare agents--detection. Translation: JPRS 964-D.

272. LEVITAN, V.M. Rabota sanitarnykh zven'ev v khimicheskikh ochagakh porazheniya (Work of sanitary units in chemically affected areas). Moskva, Medgiz, 1949. 22 p.
DNLM

Author discusses chemical warfare dangers and gives protections for people. Stresses civilian defense.

273. LEYPUNSKIY, O.I. Dangers of radioactivity in the case of a continuation of tests carried out with atomic bombs. Atomnaya energiya, v. 4, no. 1, 1958, 63-70. QC770.A83, v. 4

On the assumption that every year atomic bombs with an equivalent of 11 million tons TNT are exploded for test purposes, the dangerous nature of radioactive precipitation falling onto the earth is evaluated. The Sr^{90} -concentration in bones, the number of persons afflicted with cancer of the blood, and the number of persons having suffered genetic damage is calculated.

274. LEYPUNSKIY, O.I. Radioactive hazards from clean hydrogen bomb and fission atomic bomb explosions. Atomnaya energiya, no. 12, 1957, 530. QC770.A83 1957

Information concerning the extent the atmosphere is contaminated, etc.

275. LEYTES, F.L. The influence of α-radiation on the proliferative function of the epidermis. IN: Akademiya nauk SSSR. Doklady, v. 128, no. 2, 1959, 400-403. AS262.S3663, v. 128

The rapid development of irradiation injuries observed during α irradiation of the epidermis, followed by proliferative stimulation, confirmed the hypothesis stating that irradiation-induced cell disturbances take place mainly during the mitotic phase and are related mostly to disturbances in cell division mechanisms. The rapid regeneration of skin tissue following a radiation injuries attests to the positive effects of stimulation as a means of liquidating radiation injuries. The unique epidermis reactions to α-irradiation are obviously induced by the special properties of α rays (high ionization density causing a higher biological effectiveness than α and γ rays).

276. LI, CH'ING-LIN. At the chemical corps school. Chien-fang chün hua-pao, no. 6, 1957, 14-15.

The antichemical corps is the smallest, but most modern unit of the PLA. Information states that since all the nations of the world are not peaceful, and after the U.S. used germ warfare in Korea and North-east China, this antichemical corps was established. The antichemical corps has a great deal of technological materials and apparatus so that during any future war they are responsible for protection against atomic radiation, chemicals, and bacteria. This protection is insured by such means as detecting chemical radiation; checking personnel and weapons for radiation; administering veterinary care to animals; decontaminating transportation equipment, ground area and clothes; and sterilization and decontamination of radiation sickness.

The antichemical corps is not only concerned with the chemical area, but has integral units concerned with atomic radiation and bacteria. Other areas of interest are pyrotechnics and smoke screens. Photos of students observing the effect of poison on a rabbit and the recovery of the rabbit when a sterilizing agent is administered. Another photo shows students experimenting with sterilizing agents in a laboratory and another students learning how to use radiation detecting equipment. Less technical photos show exercises in flame throwing, smoke screen laying, and decontamination.

277. LI, SHU-LIANG. All of the women of the nation are working toward the building of a socialist state. Chien-fang chün hua-pao, no. 5, 1 Mar 1959, 5.

Women scientists of China are engaged in many phases of modern research. Under the direction of the Atomic Research of the Chinese Academy of Sciences, Wang, Feng-yang has developed a new cleaning process. [This cleaning process could be in the field of radiation].

278. LIBERMAN, A.N. Effect of B-complex vitamins of the resistance of the organism to radiation action. Fiziologichnyi zhurnal, Kiyev, v. 4, no. 6, 1958, 814-820. QP1.A453, v. 4

This paper was previously abstracted from the original language and appears in NSA, vol. 3, as abstract no. 20819. A preliminary administration of vitamin B_{12} alone followed by a therapeutic one gave rise to less pronounced positive changes in cellular respiration, than was the case when the group B vitamins were administered in combination. Translation: JPRS-L-765-N.

279. LIBERMAN, E.A. A method for studying the effect of ionizing radiation on nerve cell function. Biofizika, v. 3, 1958, 241-243. QH505.A1B53, v. 3

A technique is described for preparing liquid extracellular electrodes for use in the study of elaboration and translation of nerve signals in response to stimuli. The nerve processes in irradiated and unirradiated cells can be studied by use of the equipment. In addition, the technique can be applied to the study of tissue preparations and internal structure of nerve cells.

280. LIBINZON, R.YE. Biochemical alterations in response to strong doses of ionizing irradiation. Biofizika, v. 4, no. 1, 1959, 89-99. QH505.A1B53, v. 4

A study was made of the effect of heavy doses of irradiations on some biochemical processes. The DNA and RNA phosphorus amount in bone marrow, spleen and liver tissues as well as in the central brain and in the egg was compared in normal and in irradiated dogs and found to change considerably in the latter. A sharp difference could be also detected between the behavior of nucleinic acids in the mentioned tissues. In bone marrow the decrease of DNA and of RNA was stronger and took place earlier than in the other tissues. When the dog died directly in the irradiation field, the amount of DNA per 1 g. body weight decreased by 38% and its average amount per one bone marrow cell dropped by 50%. These data permit to speak of the direct destruction of DNA in bone marrow under the effect of irradiation. The average RNA amount did not decline sharply. In response to total-body irradiation with very heavy doses, the amount of nitrogen in the blood serum was increased by many times. The rise of the serum protein was observed in all the animals treated with 240-15 kr. doses. In rats, the action of cholinestherase did not change essentially 1-5 hours after irradiation with 50-10 kr. doses, neither in the brain nor in the muscles and in the serous membrane of the intestine. No considerable alterations of the adenosintriphosphatase could also be observed in response to the mentioned doses in the spleen, the serous membrane of the intestine, in the muscles, in the liver, and in the central brain. The bone marrow is an exception in this respect, for the action of the adenosintriphosphatase was lowered in it by 50% 5 hours after irradiation with 50 kr.

281. LINDQUIST, P. Chemical and biological warfare. Armed forces chemical journal, no. 3, 1959, 23-24.
QG447.A75 1959

Defense Minister Zhukov, stated before the Communist Party Congress, Jan, 1957, "The USSR is rebuilding its Armed Forces on the basic assumption that the means and forms of future war will differ in many respects from past wars. We will see the mass use of air power, various types of missiles, and means of mass destruction like nuclear, chemical, and biological weapons." Col. Adam Milkovich, Yugoslavia, had an article in the Nov/Dec, 1956 issue of (translation) Military Medicine and Pharmaceutical Review. The colonel discussed chemical and biological warfare that less work has been done on defensive measures against biological weapons." The main reason, though is not that biological weapons have never been used in war, but that the use of them has never been detected as was the case with atomic and chemical weapons." He believes that a biological war would

have the greatest effect of any known weapons, and that any international decisions on this matter would solve nothing. It would be practically impossible to contrd either the preparation or the use of biological weapons in peacetime. Dr. Lindquist, prefaced his remarks with a showing of the Russian civil defense posters which are described in a card, in this bibliography, under the initial entry of "Russian Civil Defense Posters." He is Acting Deputy Director, Health Services, Office of Civil Defense Mobilization, Battle Creek, Michigan.

282. LIPKAN, N.F. Conference on the action of ionizing radiation on the animal body. Meditsinskaya radiologiya, no. 1, 1959, 86-87. DNLM

283. LITVINOV, N.N. Morphological changes of bone tissue in acute and subacute affection with plutonium. Meditsinskaya radiologiya, no. 5, 1959, 68-72. DNLM

Experiments were conducted on 70 white rats who received intraperitoneally plutonium 239. Considerable changes were seen in the bone tissue upon administration of 0.15, 0.108, 0.04, and 0.02 μ C/gm body weight. The changes were most pronounced in the long bones and had a definite sequence of development. In the course of the first days following the administration of plutonium there was seen an increase of bone resolution with development of cellular-fibrous tissue, containing a large quantity of osteoblasts. After the second week a gradual inhibition of the processes of enchondral ossification ensued, with reconstruction of the bone and a drop of the amount of osteoblasts. At the height of affection (3-5 weeks) total inhibition of the processes of esteogenesis with death of osteogenic tissue was observed. In animals receiving plutonium with specific activity of 0.04 and 0.02 μ C/mg body weight, the disturbance of osteogenesis was marked to a lesser degree than in introduction of 0.15 and 0.08 μ C/gm; in the course of the second month the growth of bones was restored to a certain extent. The formation of a large quantity of immature bone tissue was seen in the metaphyses and diaphyses. At the end of the third month premature cessation of bone growth took place. The amount of immature bone in various portions of the skeleton increased.

284. LITVINOVA, I.B. Effects of ionizing radiation of paramecium cultivation at various temperatures. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 2, 1959, 448-451. AS262.S3663, v. 124

An analysis was made of the disturbances and regenerative processes taking place in irradiated cells at various temperatures. The data indicate the depressing effects of 100-r irradiation on the division rate of infusoria. The subsequent regenerative processes depend directly on the temperature of paramecium cultivation after exposure. It was concluded that restoration depends on the temperature much more than the depression. The experiments also showed that radiation depression and restoration of cell division depend less on the temperature than the normal processes of infusoria reproduction.

285. LITVINOVA, I.B. Effect of postirradiational temperature on the reaction of paramecia produced by different doses of ionizing radiation. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 3, 1959, 678-680. AS262.S3663, v. 124

Studies of temperature effects on the rate of cell division and survival of paramecium irradiated with 150 to 300 r at 3 to 4°C with incubation at 12, 21, and 28°C showed that an increase of incubation temperature shortened the time interval before cell division began. The survival of infusoria after the first day following irradiation was reduced. Tabulated data on the survival of paramecium at various incubation temperatures and doses showed that radiation injuries increase with lowered cultivation temperature. Hence, the data confirms the previous assertion that recuperation processes depend on temperature more than on initial injuries.

286. LIVANOV, M.N. On the effect of novocain on certain changes induced by ionizing radiation in the nervous system of animals. Meditsinskaya radiologiya, no. 1, 1958, 9. DNLM

Impulses which are increased after radiation and reach the highest portions of the central nervous systems are probably one of the factors causing the development of radiation sickness.

287. LIVANOV, M.N., and others. Sensitivity of the nervous system to low radiation doses. Meditsinskaya radiologiya, no. 9, 1959, 3-13. DNLM

The paper deals with data pointing to the high sensitivity of the nervous system to the radiation factor. It is shown that the action of ionizing radiation on the nervous system even in very low doses could accumulate and, thus, create long-term alterative processes. On the basis of the above facts the authors presume that the limits of sensitivity of the nervous system to the radiation factor and the extent of its alterative action, as a result of reparation processes, may not coincide.

288. LOSKUTOVA, YE.A. Morphological changes of the thyroid gland in rats of different age in total x-ray irradiation. Meditsinskaya radiologiya, no. 6, 1959, 51-55. DNLM

The reaction of the thyroid gland of white male rats to x-ray irradiation (800 r) depends upon the age and individual reactivity of the animal. In young rats the irradiation provokes marked changes in the thyroid gland, which in some instances are expressed by an insignificant rise of the activity (in the first hours and days after irradiation) followed by its decrease (from the 5th to 30th day). In other cases-a drop of the activity is seen already in the first hours. In all rats of this group the thyroid gland reverts to normal towards the second month. In adult rats (5-7-month-old) the above dose of irradiation provokes less pronounced changes in the structure of the gland, as compared to young rats. Towards the 18th day after irradiation the structure of the thyroid gland normalizes. Irradiation (800 r) of old rats does not cause noticeable changes in the histological picture of the thyroid gland. In young rats with a severe course of radiation sickness, sacrificed in the agonal state on the 9th-13th day following irradiation, there is evident a sharp drop of the thyroid gland activity.

289. LUBENSKII, YU.M. Penetrating gunshot wounds of the abdominal cavity in acute radiation sickness. Voyenno-meditsinskiy zhurnal, no. 7, 1958, 50-3. RC970.V55 1958

The pathology of penetrating gunshot wounds of the abdominal cavity during radiation sickness was studied in 50 dogs. Observations were made on the process of healing of the injured tissues, body temperature, weight, and blood changes. The combined injuries induced characteristics radically different from the usual wounds of the abdominal cavity. These pathological changes are described. Translation: JPRS 870-NY.

290. LUCHNIK, N.V. Alcohol and ionizing radiation. Atomnaya energiya, no. 5, 1956, 134. QC770.A83 1956

The theory of drinking alcohol as a protection from radiation is disproved in this article. In fact it causes worse dangers according to the Soviets. There are 2 tables and one graph.

291. LUCHNIK, N.V. Effect of fractionation and size of the dose on the cytological effect of radiation. Biofizika, v. 1, no. 1, 1956, 633-641. QH505.A1B53, v. 1

292. LUCHNIK, N.V. Effect of yeast extracts on irradiated organisms. Biokhimiya, v. 23, no. 1, 1958, 146-153. QH301.A343, v. 23

Yeast extracts have the property of decreasing the harmful effect of radiation on the living organism. Not all yeast extracts have the same effectiveness. The conditions of storage of the yeast before preparation of their extracts are factors of considerable importance determining their effectiveness.

293. LUCHNIK, N.V., and others. On the reversibility of cytogenetic injuries caused by radiation. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 1, 1959, 213-216. AS262.S3663, v. 124

Experiments were made with pea seeds and seedlings irradiated by γ rays in order to determine the possibility of particle reversibility of irradiation injuries in chromosomes. Also, the effects of cysteine fixation on dry seedlings after irradiation by 15,000 r and on seedlings after irradiation by 800 r were studied.

294. LUCHNIK, N.V. Radiation protection agents and mortality peaks. Biofizika, no. 3, 1958, 332-342. QH505.A1B53 1958

Experiments on the effects of various chemical and biological materials on the mortality peaks appearing in the post-irradiation death distribution are described. Mice irradiated with Co^{60} γ rays were used. The protective action of 80 agents was tested on the first and second peak at 1000 r in the main experiment. Of these, 8 selectively reduced the first peak, 11 the second and 11 both. A similar picture is obtained at lower doses, at which five peaks appear. Some agents reduce all five, others are somewhat selective. It is concluded that the peaks reflect different ultimate causes of death, and that the various protection agents act in different ways.

295. L'VITSYNA, G.M. Specific features of skin allergic reactions in irradiated animals. Meditsinskaya radiologiya, no. 5, 1959, 12-17. DNLM

Studies of the peculiarities in the course of skin allergic reactions in irradiated vaccinated animals. Two types of skin allergic reaction changes were observed: intensification and inhibition. An intensification of skin allergic reactions was noted at the height of radiation sickness in 57% of vaccinated guinea pigs, which were subjected to single x-ray irradiation (100, 200, and 500 r). The intensification of the markedness of the specific allergy depended upon the appearance at this period in irradiated guinea pigs of nonspecific hyperergic reactions.

296. LYALIN, K.A. Metamorphogenic activity of thyroid tissue in animals subjected to irradiation. IN: Akademiya nauk SSSR. Doklady, v. 128, no. 2, 1959, 404-406. AS262.S3663, v. 128

The influence of total-body exposure on thyroid hormone synthesis and content was investigated in order to learn the pathogenesis of irradiation injuries and therapy of sickness. 330 white male mice were exposed to various types of irradiation: (1) single exposure to Co^{80} ov 1000 r (500 r/hr); (2) chronic irradiation (1000 r dose) for 8 days (with 5.6 r/hr) and (3) chronic exposure to 800 r administered during 90 days of continuous irradiation at 0.42 r/hr. The data showed metamorphogenic activity changes related to the type of irradiation. The single exposure induced an acute radiation injury causing a sharp drop in metamorphogenic activity followed by progressively weakening activity. The extended exposure to the same dose also reduced the metamorphogenic activity followed by restoration to normal after a short time. The chronic exposure initally retarded thyroid activity which later was restored to normal, even with continuous exposure and increased doses.

297. LYASS, F.M. Conference on the use of radioelectronics in medicine and biology. Meditsinskaya radiologiya, no. 6, 1959, 93. DNLM

298. Magyar nepkoztarsasagi orszagos szabvany (Defense against radioisotope radiation). Budapest, December, 1957. p. 1-28.

This manual was prepared by the special committee of the Hungarian Office of Standards, and approved by the special committee on health protection and technical safety of the Hungarian National Atomic Energy Commission. The provisions embodied in this document are

mandatory in Hungary as of 1 August 1958. Topics include maximum permissible dosage levels, protection against radiation from closed radioisotopic products, protection in work conducted with open radioisotopic products, neutralization of radioactive waste, directions regarding measuring instruments for radiation protection, and transport and storage of radioactive materials. Translation: JPRS L-1125-D.

299. MALAKHOV, S.G. Vertical profile of radioactive emanation in atmosphere. IN: Akademiya nauk SSSR. Izvestiya. Seriya geofizika, no. 9, 1959, 1344-1352.
QC801.A35 1959

Theoretical calculations were made of the vertical profile of radioactive emanations in the atmosphere, and the quantative ratio between the concentrations of Rn and Th in the soil and atmosphere are estimated.

300. MALSHINSKIY, A. Khimicheskoye oruzhiye inostrannykh armiy i protivokhimicheskaya zashchita (Chemical weapons of foreign armies and anti-chemical defense). Moskva, DOSAAF, 1957. 98 p. UG447.M29

Book stresses chemical warfare and safety measures for the population.

301. MANKVICH, A.A., and others. Tezan 25 for the prophylaxis and treatment of radiation sickness in tumor patients. Problemy onkologii, Sbornik trudov, SSSR, v. 3, 1958, 724-728. DNLM

Tezan 25 was found to be an effective drug for the prophylaxis and treatment of radiation sickness in tumor patients. Tezan 25 improved the general state of the patient, stimulated the depressed function of leukocytogenesis, and prevented or reduced the symptoms of intoxication by radiation. Tezan 25 is described as a white, sweet, crystalline powder, but no indication of its chemical nature is given.

302. MARKY, A.N. Sanitarnaya okhrana otkrytykh vodoyemov ot zagryazneniya radioaktivnymi veshchestvami (Sanitary protection of open water reservoirs from contamination by radioactive substances). Moskva, Medgiz, 1958. 91 p. TD423.M3

When a water source is contaminated by long-lived radioelements, they will most probably invade the organism by way of the water it drinks. Consistent systematic consumption of water containing activities in excess

of the maximum permissible concentration creates the danger of their accumulation inside the organism, which may cause a radiation injury. Another path of the infiltration of radioelements into human organisms is the consumption of contaminated food. Data are summarized on the biological effect of radioactive substances. Methods of sanitary and health physics control of the purity of open water reservoirs, underground supply sources, and other sources of water supply, drainage systems, and water-conveying facilities are discussed. Methods of decontaminating liquid wastes containing radioactive substances are reviewed. Instruments for radiometric assays are described. Contents: Some data on the biological effect of radioactive substances. Methods of sanitary and health-physics control of the purity of open water reservoirs and other sources of water supply. Methods of sanitary and health-physics control of drainage systems. Methods of sanitary and health-physics examination of open water reservoirs. Methods of sanitary and health-physics examination of water-conveying facilities. Methods of sanitary and health-physics examination of underground water supply sources. The concept of dosimetric field instruments and the principles of radiometric assays. Data processing and appraisal from the hygienic standpoint. Some information about the methods of decontaminating the liquid wastes containing radioactive substances. Appendix 1: Temporary maximum permissible levels of ionizing radiation. Appendix 2: Natural content of radioactive potassium in food products. Main subject headings are Engineering--Sanitation, Water supplies--USSR, Water supplies--Contamination and Radiological contamination--Countermeasures. Translation: JPRS L-514-N.

303. MASLOVA, A.F. Mechanism governing the derangement in the level of adrenaline and adrenaline-like substances in the blood and aqueous humor of rabbits following total irradiation. Meditsinskaya radiologiya, no. 12, 1959, 36-41. DNLM

The changes in the content of adrenaline, noradrenaline and oxydation products were investigated in rabbits after their total irradiation. These involved two phases of the symphathin content rise in the blood and aqueous humor. The author analyzed the mechanism of the above changes.

304. MASLOVA, A.S. Changes in the adrenalin content of the blood and of the aqueous humor of the eye of the rabbit after irradiation. Byulleten' eksperimental'noy biologii i meditsiny, v. 46, 1958, 1105-1108.
R91.B56, v. 46

The reaction of the endocrine glands to the action of ionizing radiation plays an essential role in the development of radiation sickness. Several features, beginning with changes in the blood picture and ending in trophic disturbances of complex origin, are explained by the action of ionizing radiation on the glands of internal secretion. Accordingly it is profitable to study these endocrine mechanisms. According to the ideas of modern radiobiology, the participation of the glands of internal secretion in these reactions is determined by nervous influences on the glands and also by interaction between them. Great importance in these interactions is attached to the reaction of the medullary substance of the adrenals. Some time ago the opinion was expressed that under the influence of ionizing radiation the secretion of adrenalin is intensified. On the other hand great importance must be attached to the increased adrenalin content of the blood as a factor stimulating the recticular substance and exerting an action on all divisions of the central nervous system, including the vegetative centers of the brain stem. It is for this reason that in studying the reaction of the endocrine glands on the action of ionizing radiation, investigation of the adrenalin content of the blood is of particular interest.

305. MASTRYUKOVA, V.M., and others. Changes in elastic and viscous skin properties after local irradiation by large x-ray doses. Biofizika, v. 4, no. 1, 1959, 101-107.
QH505.A1B53, v. 4

The aim of this research was to study the effect of irradiation and to measure the value of the decrement of damping of the skin and subcutaneous tissues during edema due to irradiation. A special apparatus to measure the value of the decrement of damping (v) was constructed and is sketched and described. Damping curves represent fluctuations of beams produced after hitting the skin in shank area of rabbits with a mallet, and graphs illustrate changes in skin (v). Among the merits of this method is that the values it measures for the elastic and viscous properties of the skin can be detected earlier than the values obtained by other methods known at present. These experiments verify that changes in the elastic and viscous properties of the skin after local irradiation are characterized by the development of edema. Evidently, the value of (v) is closely linked to the physicochemical molecular properties of the live skin.

306. Meditsinskaya radiologiya, no. 1, 1959.
DNLM

The issue is translated from cover to cover. Translation: JPRS-2286.

307. MEDVEDEV, V. Pravila povedeniya v zarashennom rayone (Rules of behavior in a contaminated area). Izd-vo DOSAAF, 1958. 47 p.

The book discusses means of modern air attack and gives various instructions to the population for means of survival. Emphasizes radioactivity and protection against it. Chemical and bacteriological weapons and protection against them. Rules of safety in affected areas.

308. MEDVEDEV, ZH.A. Rapid determination of the radioactivity of proteins and of the relative proportions of various fractions of radioactive substances present in leaves. Biokhimiya, v. 23, no. 6, 1958, 801-808.
QH301.A343, v. 23

A new procedure is described, serving for the rapid assay of the specific radioactivity of leaf proteins, and for the estimation of the relative proportions of various fractions of radioactive substances present in leaves. The leaf is placed on a weighed sheet of filter paper, and struck by a spring loaded piston; this squeezes out fluid, giving an imprint of the leaf. The imprint is treated with 10% trichloracetic acid to fix proteins, water-soluble substances and lipids are removed by washing, and the sheet is dried and reweighed, giving the protein content of the imprint, which is calculated per unit area. The specific radioactivity of the protein is calculated from the results of measurements of the surface radioactivity of the imprints. The relative proportions of various radioactive fractions are evaluated without weighing the sheets, from measurements of surface activity of the imprints at various stages of their selective extraction with appropriate solvents. The method is quick and simple, and is applicable to mass serial determinations of specific activity of labelled substances, and of the relative proportions of such substances in the protoplasm of the leaf cells.

309. MIKHAYLOV, P. Effects of the use of atomic weapons against airfields. Sovetskaya aviatsiya, 16 Jan 1957, 3.

The article, which outlines the effects of the use of tactical atomic bombs against the airfields, is said to be based on information gathered from foreign publications. Translation: AF 1116299

310. MIKAHYLOV, V. Natural and artificial radioactivity. Vestnik vozdushnogo flota, no. 4, 1954, 80-90.
TL504.V45 1954

Information on principles of radioactive disintegration, features of radioactive radiations and method of their detection. The author is an Assistant Professor, Bachelor of Physics and Mathematics and an Engineer Lieutenant Colonel. Summary: AF643160.

311. Military information on communist China. JPRS no. 192 N appendix 2, p. 4.

In the subsection of this work entitled "Training on Passing Through Radiation Contaminated Area", a brief description was given on the procedure. The use of protective clothing was suggested and there was an emphasis on not touching anything with bare hands. Article urges use of sterilizer kits for weapons and clothes.

312. Military information on communist China. JPRS no. 192 N, p. 5.

In the subsection of this work entitled "Training on the Decontamination of Radioactive Fallout", general procedures were given for decontamination in combat areas. Emphasis was given to the most immediate steps possible such as dusting of clothes and equipment as well as exposed areas of the body. If uncontaminated water is available, it is better to wash everything down. All personnel must be checked by a radiation detector as soon as possible.

313. MINAYEV, P.F., and others. Effect of x-rays on nerve tissue metabolism. Referativnyy zhurnal. Khimiya; biologicheskaya khimiya, no. 23, 1958, abst. 30991.
QP501.A543 1958

Local irradiation of the cerebellum of guinea pigs by x-ray doses of 16,000 and 9,000 to 12,000r caused very insignificant changes in the glutamic acid (a decrease of 6 to 12 mg%) and glutamine (a rise of 5 to 14 mg%) content in the brain tissue. The quantity of ammonia remained unchanged in all cases of local irradiation of the cerebellum. After total irradiation by doses that exceed the lethal dose by 2 to 4.5 times, (1,000 and 2,000r), the level of glutamic acid in the brain is decreased by 20 to 38 mg%, and the level of glutamine is also decreased, while there is an insignificant rise in the ammonia.

314. MIRIMOVA, T.D. Roentgenological changes of the gastrointestinal tract in puppies of different age under the influence of x-ray irradiation. Meditsinskaya radiologiya, no. 6, 1959, 41-47. DNLM

The article presents the results of roentgenological investigations of the functional state of organs of the gastrointestinal tract in puppies of different age, affected with acute radiation sickness. The author shows the importance of the roentgenological method for the determination and study of functional disturbances in the gastrointestinal tract of puppies in acute radiation sickness. The unorganized character of the gastrointestinal activity of young puppies observed in normal conditions, increases in 24 hours following total irradiation even in minimum lethal dose (200 r). Especially pronounced disturbances are noted in the small intestine. Changes in the gastrointestinal tract, approaching those seen in adult dogs, are found in puppies over 3 months old. Confrontation of personal and literature data point to the fact, that the leading part in the formation of the gastrointestinal syndrome is played not only by the ionizing radiation affection of the gastrointestinal tract, but by the simultaneous affection of the central nervous system as well.

315. MIROSHNIKOV, I. Kollektivnyye sredstva protivoatomnoy zashchity (Collective means of anti-atomic defense). Moskva, DOSAAF, 1957. 38 p. illus. UF767.M54

Modern means of blow; refugees, shelters and exploitation of refugees and shelters.

316. MIROSHNIKOV, I.V., and others. Zashchita naseleniya ot sovremennykh sredstv porazheniya; uchebnoye posobiye dla organizatsii DOSAAF (Protecting the populace from modern means of attack; teaching materials for organizations of the DOSAAF). Moskva, DOSAAF, 1958. 334 p. UA929.R9M52

Information reveals that the Soviets claim to have methods of detecting and protecting themselves against enemy attacks of CBR warfare. Translation: JPRS-L-1016-N covers 4 chapters of this book.

317. MOISEYEV, P.A. New data on the effect of thermo-nuclear explosions on aquatic organisms. Rybnoye khozyaystvo, v. 34, no. 7, 1958, 22-24. HD9465.R9B5, v. 34

The information appears to have been derived primarily from reports presented by Japanese delegates to the Ninth Pacific Scientific Congress held in Bangkok in 1957. A steady increase of radioactivity of sea water

has been observed over a period of years. By the beginning of 1957 the radioactivity of coastal areas began to equal that of the open reaches of the western Pacific. A table shows the Sr^{90} content of bones of fish indigeneous to the coastal areas. Main subject headings are Biological sciences--radiobiology, aquatic animals--radioactivity and atomic bomb explosions--biochemical effects. Translation: JPRS L-1729-D.

318. MORDVINOVA, N.P., and others. Administration of drugs for the clinical and experimental therapy and prophylaxis of cutaneous radiation injuries. Vestnik rentgenologii i radiologii, v. 32, no. 3, 1957, 14-19. RM845.V4, v. 32

Local radiation injuries were inflicted on rabbits by p^{32} (total dose 6200 r) or by x-radiation (total dose 9250 r). The lesions were successfully treated by direct application of thesane emulsion. Clinical experience indicates that daily use of the emulsion permits an increase of radiation dosages in most patients. Thesane is described as a biostimulator. "Ointment no. 2", a preparation from the juice of fresh leaves of arborescent aloe developed by the All-Union Institute for the Investigation of Medicinal and Aromatic Plants, was found to shorten considerably the period of time for complete epithelialization of the skin in wet dermatitis. "Preparation no. 4-U", a methylated derivative of linolenic acid, was found to be of no value in the treatment of local radiation injuries. Main subject headings are Biological sciences--radiobiology, skin--effects of radiation and radiation injuries--countermeasures. Translation: AEC-tr-3606

319. MORDVINOVA, N.P., and others. Prophylaxis and treatment of skin injuries in radiation therapy of patients with malignant neoplasma. Vestnik rentgenologii i radiologii, v. 33, no. 3, 1958, 37-40. RM845.V4, v. 33

A new preparation was suggested for prevention of radiation injuries of the skin -- an emulsion of aloe juice (VILAR) which was tried on 200 patients, 180 of whom were subjected to radiotherapy in connection with malignant neoplasms. When this emulsion is employed the dose of ionizing radiation on the skin field may be increased by 1000 r in any location of the tumor in comparison with the control group. The skin reaction (if it appears) is milder and the recovery is quicker. The emulsion was successfully used in treatment of ulcers appearing on the skin as a result of irradiation connected with malignant tumors. Aloe emulsion gave favorable results in treatment of hands of personnel working with ionizing radiaton for a long time.

320. MORGUN, YE.G., and others. Effect of small doses of gamma-radiation on the secretory and motor activity of the stomach in dogs. Meditsinskaya radiologiya, no. 1, 1959, 31-35. DNLM

The authors studied the effect of long-continued total external gamma-radiation on the secretory and motor activity of the stomach in dogs. Radiocobalt was employed, the average dose being 3.7 mr/sec. In view of the fact that 24-hour and 16-hour irradiation was instituted, the total dose for 15 months was 7-8 times higher (85-150 r) than the highest permissible dose. The experiments were carried out on 5 dogs: one-non-operated, three--with chronic gastric fistulas and one dog with a small isolated Pavlov's pouch. Under investigation were the evacuatory, the periodically fasting and secretory functions of the stomach. The authors established prior to irradiation the "norm" of the gastric evacuatory, periodically fasting and secretory activity, the investigations being continued during the irradiation of animals. In the absence of changes of the general state of the animals and the composition of the peripheral blood, definite changes in the activity of the stomach were observed. Thus, the secretory activity of gastric glands to food stimuli is inhibited from the fifth month of irradiation. The periodically fasting activity of the stomach changes from the 6-8th month of irradiation towards lengthening of periods of stomach contraction and shortened periods of rest. The evacuatory function of the stomach decelerates from the 10-11th month of irradiation upon introduction of food, and does not change in administration of barium suspension in water.

321. MOROZ, B.B., and others. Action of Po^{210} on the organism. Meditsinskaya radiologiya, no. 9, 1959, 66-74. DNLM

322. MOROZOV, A.I. Surgical treatment of wounds of soft tissues in radiation sickness. Vestnik rentgenologii i radiologii, no. 2, 1958, 86-87. RM845.V4 1958

Clinical aspects of soft tissue wounds in animals subjected to various doses of ionizing radiation are considered. Also, the possibility of primary wound closure in the first 24 hours after trauma, as well as the possibility of delayed primary and secondary closure at various periods in radiation sickness are studied. Experimental techniques and results are described. Translation: JPRS-1409-N.

323. MOSKALEV, V.D., ed., and others. Uchebnoy posobiye po MPVO (Training manual on local air defense). Moskva, 1956. 222 p. illus. UG635.R9V8

Information concerning chemical and bacteriological warfare are extracted from this book. The list of enclosures includes diagrams of a chemical aviation bomb, GP-gas mask, various positions of gas mask, alert position of the gas mask, putting on the gas mask, taking off the gas mask, the KIP-5 oxygen mask (with housing covers removed) putting on the protective cape, protective coverall, taking off the protective coverall, the wet shield coverall. Describes the various toxic substances used in chemical warfare, and their effects on human beings. It also gives the methods by which chemical warfare can be conducted, bombs, mines, aircraft spraying etc. How to identify if the enemy is practicing chemical warfare. Gives information concerning bacteriological weapons. Describes various means used to conduct a bacterial war. There is a list of diseases with the incubation period, quarantine, etc. Tells how civilians can protect themselves from the above mentioned methods of war. Goes into great detail about the types of protective clothing and how civilians should operate them and also care for them. Summary: AF1022836.

324. MOSKALEV, YU.I., and others. Biological action of radiobarium. Meditsinskaya radiologiya, no. 4, 1959, 57-60. DNLM

The specificity of radiation sickness in parenteral administration of various doses of radiobarium (Ba^{140}) was studied in experiments on rats. Values of acute (LD 50/30 = 1.97μ C/gm) subacute (LD 50/120= 1.42μ C/gm) and chronic (LD 50/360= 0.91μC/gm) doses were established. Acute radiation affection provoked by Ba^{140} is characterized by the development of a comparatively brief agranulocytic syndrome and hypochromic anemia, hemmorhagic diathesis, degenerative changes of parenchymatous organs, and early suppression of spermatogenesis. The subacute stage is characterized by the prevalence of restorative processes in the hematopoietic organs effecting the normalization of peripheral blood picture (40th-50th day), atrophic changes of parenchymatous and generative organs, and the appearance of nonspecific inflammatory processes of bacterial nature. In the chronic form of affection benign and malignant tumors (chondrosarcoma of the femur, papilloma of the urinary bladder and leukemia) develop in a number of animals.

325. MOSKALEV, YU.I. Data on the distribution of Pm^{147}. Meditsinskaya radiologiya, no. 6, 1959, 73-75. DNLM

The author studied the distribution of Pm^{147} in the organs of rats upon intravenous and peroral administration. It has been established that Pm^{147}, upon intravenous introduction, is deposited mainly in the liver (44.4%) and skeleton (28.4%). It excretes almost exclusively with the feces. Pm^{147} is not adsorbed from the intestine.

326. MOSKALEV, YU.I. Experiments on the distribution of Ce^{144}. Meditsinskaya radiologiya, no. 5, 1959, 52-58. DNLM

The article presents data on the distribution of Ce^{144} in rats in intravenous, subcutaneous, and peroral administrations. In intravenous introduction the largest portion of Cerium is deposited in the liver (up to 65%) and skeleton (up to 39%) Ce^{144} is excreted almost exclusively with the faces. It is slowly and in small quantities (14.4% in 16 days) absorbed from the subcutaneous cellular tissue. In subcutaneous introduction, as distinct from intravenous administration, relatively larger amounts of Ce^{144} are found in the skeleton and kidneys, lesser--in the liver, spleen, suprarenals and bone marrow. 0.03% of Ce^{144} introduced is absorbed from the intestine.

327. MOSKALEV, YU.I. Influence of Polyphosphates on the distribution of Ce^{144}. Meditsinskaya radiologiya, no. 1, 1959, 65-72. DNLM

328. MOSKALEV, YU.I. Problems of biophysics and radiobiology at the IX Congress of the All-Union Society of physiologists, biochemists, and pharmacologists. Meditsinskaya radiologiya, no. 12, 1959, 85-87. DNLM

329. MOZZHUKHIN, A.S. Changes of reflexes from the carotid sinus in acute radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 32-36. DNLM

In acute and chronic experiments on rabbits subjected to radiocobalt irradiation (800 r), the author studied the reflexes from the carotid sinus on respiration, heart, and blood pressure. Changes of the pressure reflex from the carotid sinus (decrease, disappearance, and perversion) observed in the period of primary reaction and at the height of acute radiation sickness, are of central origin and are connected, apparently, with disturbance of normal intercentral interrelations of reflexes with sinocarotid and aortic reflexogenic zones. The writer is associated, by the order of Lenin, with the Military-medical academy imeni S.M. Kirova.

330. **MOZZHUKHIN, A.S.** Changes of the venous pressure in rabbits affected with acute radiation sickness. Meditsinskaya radiologiya, no. 8. 1959, 21-23.
DNLM

The author studied the changes of venous pressure of rabbits in the systems of the portal vein, inferior and superior venae cava following total x-ray irradiation (800 r). As the result of the investigation there was observed a statistically confirmed drop of the venous pressure in all the venous systems studied at the period of primary reaction and at the peak of acute radiation sickness. A concurrence of the venous pressure drop with a sharp distension of venous walls of internal organs due to overfilling with blood testifies to a considerable decrease of the tone of the venous walls, predominantly of the internal organs, in acute radiation sickness.

331. **MUKHIN, YE.A.** Prophylactic use of certain sulfurous substances in experimental radiation affections. Meditsinskaya radiologiya, no. 9, 1959, 29-33.
DNLM

In the comparative study of various "protective" substances-salts of β-mercaptoethylamine, its derivatives, isothiurone compounds-it has been established that the toxicity of preparations of β-mercaptoethylamine and β-aminoethylisothiuronium depends upon the acid part of the compound, the dosages, the time of introduction, and the length of the observation. These substances lowered the blood pressure by stimulating the parasympathetic innervation. With the substitution of the amino-group hydrogens of β-mercaptoethylamine and β-aminoethylisothiuronium by methylic and ethylic radicals-along with a toxicity increase the preparations lose their protective properties. β-mercaptoethylamine, β-aminoethylisothiuronium and ethylisothiuronium when used in effective protective doses possess a hypothermic and antidiuretic action, moreover, there is no parallelism between these properties and the strength of the protective effect of the above agents.

332. **MUNNICH, K.O.,** and others. Radioactive carbon in the atmosphere produced by atomic explosions. Die Naturwissenschaften, v. 45, no. 14, 1958, 327-329.
Q3.N7, v. 45

Main subject headings are Nuclear physics--radioactivity, atomic bomb explosions--radioactivity, atmosphere--contamination, and carbon isotopes (Radioactive)--production. Translation: AEC-tr-3500.

333. MUSHINA-UDGODSKAYA, L.N. The effect of surrounding temperature on the course of radiation sickness. Vestnik rentgenologii i radiologii, v. 33, no. 3, 1958, 23-27. RM845.V4, v. 33

Acute radiation sickness was experimentally induced in white rats. A considerable effect of temperature of the surrounding environment (air) on the severity of this disease was noted. The mortality of rats equalled 95% when the air temperature was 20-25°C (in summar). When rats were irradiated by the same doses during the winter season at the temperature of 8 to 10°C (in vivarium) their mortality reduced to 5%. The unfavorable effect of high temperature was mostly manifested in increased mortality of irradiated rats. This factor also affected (but to a lesser extent) the clinical manifestations of radiation sickness the morphology of a number of organs and the blood picture. Translation: JPRS-1321-N.

334. MYASNENKO, A. Antiair defense-bacteriological weapons. Sovetskiy patriot, 10 Mar 1957, 3.

Accusations that the U.S., England, Canada, West Germany, and countries that consistute the North Atlantic bloc are developing bacteriological weapons claims the U.S. used them in Korea. Gives details of bacteriological weapons and how to recognize their use. Lists means of defense. Author is a doctor. Translation: JPRS-L-5-D.

335. NESMEYANOV, A.N. Voyennoye ispol'zovaniye atmnoy energii (Military uses of atomic energy). Moskva, Voyennoye izdatel'stvo, 1955. 123 p. illus. QC795.N4

Chapter 5, p. 92-113, has the following subdivisions: Atom bomb, hydrogen bomb, radioactive combat substances, some of the means of protection against atomic weapons. There are 14 drawings and diagrams inclosed at the end of the report. Translation: AF1049835.

336. NESTERIN, M.F. Disturbance and restoration of the secretory function of the gastrointestinal tract in radiation sickness. Meditsinskaya radiologiya, no. 9. 1959, 76-77. DNLM

337. NESTERIN, M.F. Influence of x-ray irradiation on the fermento-secretory processes in the intestines. Vestnik rentgenologii i radiologii, no. 32, 1957, 81-83. RM845.V4 1957

The results of experiments with dogs exposed to 200, 400, and 600 r showed various fermento-secretory reactions. The secretion enterokinase and phosphatase content increases with exposure to 200 and 400 r and drops at 600 r. The content of saccharase drops at

400 and 600 r, while the content of the lipase and polypeptidase does not change with exposures to 200, 400, and 600 r.

338. NEVSKAYA, G.F. Dosimetric parameters and the distribution of depth doses of the GUT-Co-20-1 gamma-apparatus. Meditsinskaya radiologiya, no. 7, 1959, 76-80. DNLM

A study was carried out of the therapeutic Gut - Co-20-1 telegamma-apparatus (Co^{60}-20.9 g-eq. Ra). The distribution of radiation provides for a beneficial action of rays on tumors, located with 3.5-5.5 cm from the surface of the skin. At this depth conditions are created for uniform and considerable irradiation, while the tissues anteriorly and posteriorly of the tumor are within the region of weakened irradiation. It is preferable to employ the GUT-Co-20-1 apparatus for the treatment of tumors of the maxilla, tongue and oral cavity, cancer of the larynx and pharnyx, primary and metastatic tumors of the neck, etc. The protective properties of the apparatus' head and camera are considered as unsatisfactory, however, they could be improved by substituting the lead head for a tungsten one, and employing Cs^{137} as a source of radiation instead of Co^{60}.

339. New stage in China's atomic science. Peking review, no. 31, 30 Sept 1958, 7-8. DNLM

China's first experimental atomic reactor and cyclotron were officially commissioned on 27 Sep 1958. The reactor is of the heavy water type with thermal power ranges from 7,000 to 10,000 kilowatts. It will be used for research and for the production of radioactive isotopes for industrial, agricultural, and scientific research as well as medicine and other areas. At the ceremony Vice-Premier Nieh, Jung-chen pointed out that the United States hoped to use atomic blackmail against China, but that they should realize that in the present era, atomic weapons are not monopolized by them.

340. News of Soviet medical science. Gigiyena i sanitariya, no. 6, 1959, 92-93. RA421.G5 1959

Names the changes the Ministry of Health of the USSR, made in January, 1959, concerning temporary regulations for the organization and operation of radiological departments in the institutes of the Ministry. The regulations cover 14 sections; the basic sections set forth the requirements for the premises of radiological departments which used closed sources for therapeutic purposes, for premises working with radioactive indicators, for the equipment of premises where open radioactive sources were used for therapeutic and

diagnostic purposes, for ventilation, for the removal and decontamination of waste materials containing radioactive isotopes, and for protection from radiation in work with radioactive substances. Translation: JPRS-2293.

341. NEYMAN, M. On the thermonuclear weapons. Voyennyy vestnik, no. 9, 1957, 67-72. U4.V874 1957

Professor Neyman describes in general terms one-phase, two-phase and three-phase atom bombs and the extent of radioactivity resulting from their explosion. Methods of atomic and thermonuclear blasts detection are also discussed. The four diagrams attached to the report show, types of atomic weapons, radioactive contamination at Bikini, spread of radioactivity and an air sampler installed on aircraft. Summary of report concludes that the Soviet Union is arming with all types of new weapons (atomic and thermonuclear) and combat technical equipment. Translation: AF1181181.

342. NEYMAN, M.B., and others. Termoyadernoye oruzhniye (Thermonuclear weapons). Moskva, Voyennoye izd-vo, 1958. 234 p. illus. UF767.N43

The popular pamphlet science series concerns atomic energy, thermonuclear weapons, their action and means of protection against them.

343. NIZHNIK, G.V. Effect of x-irradiation of the maternal organism on foetal histo-haematic barriers (Membrane permeability). Biofizika, v. 3, 1958, 207-213. QH505.A1B53, v. 3

The effects of various doses of x-irradiation of the material organism on the development of foetal and newborn barrier functions were examined. Particular attention was devoted to the function of the blood-brain barrier in relation to irradiation of the placental barrier. Rabbits of the chinchilla strain were used. Phosphorus-32 as Na_2HPO_4 was used as an indicator of permeability. Foetal tissue activity after application of phosphate was found to be higher in all stages of development than maternal tissue. The phosphorus content of all foetal tissues decreased with age. On single whole-body irradiation of pregnant rabbits with 600 and 1000 r, foetal tissue activity was lower than control as measured 2 hours after phosphorus administration. Tissue activity decreases with irradiation intensity.

344. NOSEK, YA., and others. Skin disactivation in contamination with radioactive substances. Meditsinskaya radiologiya, no. 11, 1959, 74-76. DNLM

The authors studied the conditions of disactivation of the intact skin contaminated with the salts of the following radioisotopes: Cs^{134}, Sr^{90}, Y^{90}, Pr^{144}, Ce^{144}, Co^{60}, Rb^{86}, Ba^{140}, La^{140}, Zr^{95}, Nb^{95}, and J^{131}. Of the 158 decontaminating substances the following mixture was found to be the best: complexon III-10 gm, kaolin-10 gm, starch-5 gm, sodium laurylsulphonate -5 gm and sodium bicarbonate-70 gm. This mixture washed off the rabbit's skin up to 90% of the radioactivity applied and (of) up to 96% from the suckling pig's skin.

345. Nuclear power station in a matchbox. IN: International civil defense. Bulletin of the international civil defense organization. Geneva, Apr., no. 46, 1959, 5.

Mentioned in the USSR press is information concerning a nuclear energy station the size of a matchbox, and able to supply 400 volts. Other achievements of the Soviet Institute of Research on Electric Production, the press mentions news of an accumulator, match size.

346. NUZHDIN, N.I., and others. Effect of γ-rays of Co^{60} on early stages of embryogeny in rabbits. IN: Akademiya nauk SSSR. Doklady, v. 126, no. 1, 1959, 187-190. AS262.S3663, v. 126

Data on changes in the early stages of embryogeny in rabbits induced by the exposure of the mother to the single total-body doses of 850, 300, and 100 r, shortly before the ovulation, show the high radiosensitivity of ovule cells. The data indicate a reduced number of females with ovulated follicles, a reduced number of fertilized ovule cells, and retardation of early stages of embryo development.

347. NUZHDIN, N.I., and others. Role of direct or distance effect of x-ray treatment in the response reaction of an organism. IN: Akademiya nauk SSSR. Doklady, v. 125, no. 3, 1959, 650-653. AS262.S3663, v. 125

The effects of direct and indirect irradiation on cornea epithelium during mitosis were studied. The experiments were carried out with 2 and 3 month old white mice exposed to whole-body and screened head irradiations of 600 and 800 r. Data showed that the irradiation depressed the mitotic division of cornea cells. With whole-body exposure the depression begins during the irradiation; the 800 r dose completely depressed the mitotic division of cornea cells after 6 hours and with 600 r only separate single units of mitosis were observed. The depression of mitotic activity in cornea

epithelium of screened head irradiation had two peak maxima, one after 2 hours and the second after 10 hours. Hence, a different mechanism in direct and indirect exposures is indicated.

348. OCHINSKAYA, G.K. Difference in the biological effect of x-rays and radiocobalt radiation on mammals. Meditsinskaya radiologiya, no. 11, 1959, 29-33.
DNLM

Experiments were performed on mice. The author compared the biological effect of x-ray irradiation of moderate hardness and of the radiocobalt γ -irradiation under conditions excluding the influence of their different penetrating capacity. Special paraffine phantoms were employed in irradiation. The doses equalled 700, 1000, and 1500 r with the same dose rate and the same distribution of the dose along the sickness of the object. The proportion of survived animals, their average life span and the degree of cornea radiation injury served as criteria in evaluating the action efficacy of the irradiations under comparisons. The distinction between the action of x-rays and those of radiocobalt is possibly connected with varying specific ionization caused by these radiations and the difference in fluctuations of the energy absorbed by various tissues.

349. OLISOV, B. Atomic weapons and anti-atomic defense. Krasnaya zvezda, 3, 4, and 6, Aug. 1954.
U4,K78 1954

Report, written from information found in various issues of a Russian newspaper, contains a popular description of atomic weapons, their lethal effects, and means and methods of anti-atomic defense. This article gives a scientific approach to the popularization of this new field in the USSR. Summary: AF645524.

350. OMEL'YANENKO, L.M. On distant sequel and rehabilitation in radiation sickness. Vestnik rentgenologii i radiologii, v. 32, no. 5, 1957, 81-88. RM845.V4, v. 32

Reports on follow-up studies of 90 persons suffering from chronic radiation disease show that the pathological processes are reversible if the patients are removed from the source of ionizing radiation, and in some cases, when the conditions of work with radioactive substances are improved. During the recuperation period changes in the general condition and blood picture tend to run a cycle course: periods of improvement are followed by periods of relative deterioration, however, once removed from contact, the patients show a tendency to gradual improvement.

351. OSIPOVSKIY, A.I., and others. Developmental abnormalities in the progeny of guinea pigs subjected to gamma-irradiation. Meditsinskaya radiologiya, no. 11, 1959, 37-42. DNLM

The authors studied the offspring (25C) of three generations of guinea pigs subjected to gamma-irradiation (GUT-Co-400 Unit) in doses of 225 and 450 r. Among the offspring of the first, second and third generation the following developmental abnormalities were revealed: disturbance in the development of the skeleton, teeth, dwarfness, neoplasms affection of the central nervous system, stillbirths, as well as a reduced viability.

352. PANUFNIK, Ladyslaw. Jak chronic sie przed dzialaniem broni atomowej (How to protect oneself from the action of atomic weapons). Warszawa, WMON, 1957. 146 p. illus. UF767.P28

Translation of the following excerpt taken from Chapter 1 part 2 entitled, "Shelters and personal means of protection," p. 99-116. Characteristics of safe shelters for the civilian population in the event of radiological warfare are discussed. It is assumed that in case of an atomic war everyone would carry a container with a gas mask, a little food and water, and personal clothing, and that women and children would always have available a long, white, protective blanket to cover the body from head to toe. When on the street everyone would learn to locate a shelter nearby. Shelters for large buildings would have two entrances and an exit located away from the walls of the building. Doors should be airtight double doors. The shelter would be resistant to shock waves and to debris from the upper floors. It would be hermetically tight against the penetration of the pressure of shock waves. A ventilation system would provide filtered ventilation. The shelters should be stocked with first aid equipment and provisions for a short stay. Other types of shelters described include a shelter for 150 people to be built in an open space and having a vault protruding only slightly above ground, a wood-soil shelter to accommodate 30 to 40 people, a ditch dug in the ground and fitted with walls and a roof, and home shelters in the corner of a basement. The behavior of people during an emergency such as an atomic explosion, individual means of protection against radioactive materials, and the possibility of the contamination of food and water supplied are discussed.

353. PAOPYAN, S.A., and others. On the problem of utilizing fibrin films after irradiation of the skin surface. Meditsinskaya radiologiya, no. 6, 1957, 61-64.
DNLM

Radiation injuries to the skin were experimentally produced by direct application of radioactive Co^{60} tubes to the parietal and abdominal areas of rabbits. Total dosages of ionizing radiation of 55,000 to 68,000 r were administered over 4-5 days. Fibrin films moistened with 0.5% novocaine solution were applied to the ulcerated skin surfaces in the experimental group and covered with an aseptic dressing which was not removed for 3-4 days. Films were applied 2-4 times. The lesions gradually became less hemorrhagic and were covered with a thin crust. The size of the inflamed focus decreased. In the control animals, the ulcers treated by usual means sometimes reached the bond. Impressions of the film treated lesions showed evidence of intense phagocytosis plus subsequent appearance of fibroblasts. G.V. Golovin (Vestnik Khirurgii USSR: 76-79, 1956) believes that this new form of tissue therapy rests on the presence of biogenic stimulators in the film preparation. Main subject headings are Biological science radiobiology, fibrin--therapeutic effects, radiation injuries--therapy. Translation: JPRS- L-440-N.

354. PARKHIT'KO, V. Cytogenous effect of small doses of ionizing radiation on mammals. Atomnaya energiya, v. 6, no. 6, 1959, 690-691. QC770.A83, v. 6

The determination of the degree of change in the chromosome sets by the action of small doses of x-ray irradiation on the sex cells of four species of mammals: guinea pigs, rabbits, white rats, and white mice.

355. PELISHENKO, I.A., and others. Changes of certain indices of the blood coagulation system in radiation sickness and in introduction to irradiated animals of a preparation isolated from the spleen. Meditsinskaya radiologiya, no. 7, 1959, 20-26.
DNLM

Experiments were staged on rats subjected to the action of x-rays (600 r). On the 8th day following irradiation there were seen a sharply marked thrombopenia, a reduced consumption of prothrombin and a higher blood coagulation time. The preparation, isolated from the spleen by the Savitsky's method, partially normalizes the disturbances in the blood coagulation system, which is seen by the increased number of thrombocytes (by 37%) and by a drop of the blood coagulation time (by 12%) as compared with the control

irradiated animals. It is shown that the disturbance of the thromboplastic activity of the blood, determined by the consumption of prothrombin, cannot be due only to thrombopenia. The authors recommend the determination of prothrombin consumption as a sensitive test for the assessment of the state of the blood coagulation system in radiation sickness, inasmuch as this test characterizes the thromboplastic activity, which depends upon many factors. The determination of the latter does not always show the real picture of the complex process of blood coagulation. The writer, by order of Lenin, serves at the Military-medical academy imeni S.M. Kirova, and is chairman of biological chemistry (associate prof. with AMN SSSR Prof. G.E. Vladimirov).

356. PENSKO, J. Problem of radiological protection abroad and in Poland. Nukleonika, (Warszawa) v. 3, no. 4, 1958, 417-427. TK9001.N86, v. 3

Methods of radiation protection Poland and abroad are analyzed. Safety measures in handling radioisotopes, remote control devices, permissible doses of exposure, decontamination of instruments and laboratories, personnel protection, and storage and transportation of radioactive materials are discussed.

357. PEREDEL'SKIY, A.A. Ecological study of ionizing radiation. Itogi nauki. Biologicheskiye nauki, no. 1, 1957, 379-392.

This review takes into consideration such items as the spread of radioactive substances by migratory fowl which feed in industrially contaminated waters, or by larvae in contaminated ponds which metamorphose into flying insects. Main subject headings are Biological sciences--radiobiology, ecology, and radiological contamination--transmission. Translation: JPRS-859-DC.

358. PERKALIN, S. They are passing the standard tests "Ready for Antiair Defense". Voyennyye znaniya, no. 1, 1959, 30-31. U4.V874 1959

The industrial and office workers of the factory "Moskabel'" give an account of their experiences of practical training in antiair defense. They are preparing to pass the standard test "Ready for Antiair Defense" (Gotov k PVO). Signal "Airalarm", using gas-masks, to put out a fire, etc. The workers of the factory "Moskabel'" receive their first antiair defense training in circles. This training takes 22 hours, the next one 14 hours; but in reality they prepare for the standard tests "Ready for Antiair Defense" all year round. The 3 photos show the civilian defense members wearing protective clothing and undergoing practice drills.

359. **PEREPELKIN, S.R.** Protective role of food in acute radiation affection of the organism. Meditsinskaya radiologiya, no. 12, 1959, 53-58. DNLM

The report deals with investigations concerning the protective role of food in irradiation of rats with a dose of 600 r. The data obtained divulge a large survival rate of animals kept on milk-egg diet, while that of animals who were given a low animal protein diet was lower. The physiological and milk-egg diets in this respect were in the intermediate position. The enrichment of the rations studied with vitamin C, P, and B complex (B_1, B_2, PP, B_6 and folic acid) taken in relatively large, low and large doses, but with changed vitamin correlation (a decrease of the vitamin C, P, and PP content and an increase of others) led to a considerable rise of the protective role of all diets especially of the physiological and meat rations, against the action of ionizing radiation. It should be noted however, that large quantities of vitamins effected a higher curative and preventive action than the two other variants-low doses and those with an altered correlation.

360. **PERSHINA, Z.G.** Bactericidal effect of ionizing radiations. Zhurnal mikrobiologii epidemiologii i immunobiologii, no. 6, 1959, 62-66.
QR1.Z5 1959

361. **PETROV, R.V.,** and others. Morphological changes in experimental leptospirosis in irradiated guinea pigs. Meditsinskaya radiologiya, no. 5, 1959, 20-23.
DNLM

This paper sets forth a comparison of morphological changes in three groups of guinea pigs: recently irradiated, recently infected with leptospirosis and a group of animals infected after irradiation in the dose of 200 r. On the basis of these investigations there was noted in the irradiated and infected animals a more intensive development of pathological changes, relative to leptospirosis and acute radiation sickness.

362. **PETROV, R.V.,** and others. On the species, organ, and organic specificity of tissue antigens in irradiated animals. Meditsinskaya radiologiya, no. 12, 1959, 41-47. DNLM

It has been experimentally established on white rats that in acute radiation sickness the species antigenic specificity of tissues remains unchanged. A decline of organic antigenic specificity and the change of the organoid (of mitochondria and microsoma) was observed.

363. PETROV, R.V. Quantitative evaluation of auto-infection in radiation disease. Vestnik rentgenologii i radiologii, v. 32, no. 1, 1957, 3-8. RM845.V4, v. 32

In whole-body irradiation by 600 r the period of sterility lasting one day is followed by a bacteremic period characterized by the appearance of a small quantity of microbes in the blood and a considerably greater amount in the spleen. This condition lasts from 3 to 7 days and may be called the period of relative compensation of protective mechanisms. The last days (8 to 10) of the animals's life are characterized by a sharp rise in microbes both in the organs and in the blood.

364. PETROVA, O.N. Role played by local and distant total exposure to x-rays in ovary injuries in mice. IN: Akademiya nauk SSSR. Doklady, v. 123, no. 6, 1958, 1018-1021. AS262.S3663, v. 123

The estral cycle and fertility of female mice were studied in relation to local ovary irradiation and in general irradiation of ovaries and other organs and tissues. Also, separate studies were made of the ovary responses to irradiation of the head only. The tabulated data show that local and general exposure to 100 r produced identical disturbance effects in the estral cycle and fertility of the mice. The estral cycle of mice exposed only to the head irradiation was not disturbed.

365. PILYUGIN, L. Specific effect of atomic explosion in populated centers. Krasnaya zvezda, 27 Jan 1955, p. 2. U4.K78 1955

The article discusses the specific effect of atomic explosion in cities on the basis of experience of atomic bombing of Hiroshima and Nagasaki. Summary: AF659724.

366. PINCES, J., resp. ed. Altalanos legoltalmi ismeretek (General civil defense information). Budapest, Voros Csillag Publishing House, 1952, p. 3-6, 25-41, 49-70, 92-95.

Hungarian civil defense measures are patterned after the Soviets. Information covers: Antigas (Chemical) protection, poison gas in general, poison gas may reach its targets in 3 forms, gas bombs, by atomization, and in glass phials. Discusses first aid during air raids, medication of wounds, shelters, blackouts, etc. The author is a captain. Translation: JPRS-L-86-D.

367. PIONTKOVSKII, I.A. Certain specific features of the higher nervous activity of fully grown animals irradiated antenatally with ionizing radiation. I. The influence of ionizing radiation on the offspring. Byulleten' eksperimental'noy biologii i meditsiny, v. 46, 1958, 1101-1104. R91.B56, v. 46

Irradiation of pregnant female animals and women with ionizing radiation may cause the appearance of a variety of congenital deformities in the offspring and may interfere with their postnatal development. L. Hicks points out the particular sensitivity of the nervous system of the embryo to ionizing radiation. Thus irradiation of rats on the 9th, 11th, 12th, and 13th days of prenatal development may cause, in addition to somatic deformities, anencephaly (on the 9th day), hydrocephaly (on the 11th day), microcephaly (on the 12th-13th day), failure of development of the subcortical structures, the corpora callosa and so on. The influence of ionizing radiation on the nervous system during antenatal irradiation has been studied mainly morphologically. There are no indications in the literature of the state of the higher nervous activity of fully grown animals exposed at various periods of their antenatal development to the action of ionizing radiation. The effect of ionizing radiation, applied in various doses and at different stages of embryonic development, on the state of the higher nervous activity of animals was studied.

368. PIONTKOVSKII, I.A. Influence of ionizing radiation on the upper branches of the central nervous system. IN: Akademiya nauk SSSR. Vestnik, no. 8, 1958, 125-126. AS262.A627 1958

The effects of ionizing radiation on the upper branches of the central nervous system were discussed at a conference. Twenty-six papers were presented. The reports were centered about two aspects; the condition of the higher nervous activity of adult animals following irradiation at various periods in parental life, and the effects of small doses of ionizing radiation on the higher nervous activity of animals. Translation: JPRS 1343-N.

369. POBEDINSKIY, M.N. Radiation injuries of ovaries. Meditsinskaya radiologiya, no. 8, 1959, 72-78. DNLM

370. POBEDINSKIY, M.N. Luchevaya bolezn' (Radiation sickness). Moskva, 1957. 59 p. illus. RC93.P6

The excerpt, taken from pages 53-55, is entitled, "Radiation sickness prevention by medicines and chemicals". The author lists certain medicines and

chemicals which are helpful and others which may not be used at all. The dangerous role of infectious diseases in combination with exposure to radiation is stressed. Translation: AF1187127.

371. POBEDINSKIY, M.N., and others. Voprosy radiobiologii (Radio biology). v. 2, Leningrad, Medgiz, Leningradskoye otd-niye, 1956. 429 p. illus.
QH652.P6

Reviewed by Yu.I. Moskalev in Meditsinskaya radiologiya, no. 3, 1959, 89-91. DNLM. A collection of articles; works of the Central research roentgeno-radiological institute of the USSR Ministry of Public Health.

372. POBEDINSKIY, M.N., and others. Anniversary conference of the central scientific roentgeno-radiological Institute of the USSR Ministry of public health on problems of medical radiology. Meditsinskaya radiologiya, no. 1, 1959, 87-91. DNLM

373. POLIVODA, A.I., and others. The electrical conductivities of liver and spleen homogenates in radiation injury. Biofizika, no. 3, 1958, 320-324.
QH505.A1B53 1958

Depolymerization-type processes occur in the livers and spleens of irradiated rats; these are accompanied by an increase in conductance and the loss of impedance dispersion. The changes appear particularly clearly in the light fraction of the homogenates, and are very marked very soon after lethal doses of Co^{60} γ rays. The lack of dispersion and the anomalous conductance variation with dilution indicate that the dipole moments of some molecular structures must have been altered.

374. POLIVODA, A.I., and others. Electronomicroscopic investigation of tissue homogenates of animals in external and internal irradiation. Meditsinskaya radiologiya, no. 9, 1959, 39-45. DNLM

The author studied the electronomicroscopic picture of the light fraction of centrifuged liver and spleen homogenates of control and irradiated rats and mice. The external irradiation was conducted with Co^{60} gamma-rays (800 r), internal-Po^{210} alpha-rays (0.2 mC/kg). Upon irradiation there appear in the tissue homogenates thread-like formation of lipoid nature.

375. POLYAK, B.L. Special features of the course in injuries and burns of the eye, complicated by radiation disease. Voyenno-meditsinskiy zhurnal, no. 4, 1958, 8-11. RC970.V55 1958

It was experimentally proved that healing of wounds in radiated animals is complicated by the development of a wound infection, especially during the climax period, i.e., 2 to 3 weeks after infection.

376. POMERANTSEVA, M.D. Effect of anesthesia and natural hibernation on radiosensitivity in animals. Zhurnal obshchei biologii, v. 18, no. 3, 1957, 194-207. QH301.Z55, v. 18

A study was made on the effects of anesthesia on radiosensitivity in mice and the effects of hibernation on radiosensitivity in ground squirrels. It was concluded that the use of nembutal, sodium amytal, and other anesthetics during irradiation increases the resistance of mice to the effects of x radiation. This is expressed in the increase of survival rate among irradiated animals, the postponement of death, and more rapid recovery of body weight. The use of hedonal and urethane anesthesia had little effect on radiosensitivity. A detailed study of the protective effect of sodium nembutal, when used as a preventive at different times and doses, showed that the protective effect is linked with a reduction in oxygen requirement of the mice. Deep nembutal anesthesia delayed early body reactions to irradiation until waking. Natural hibernation did not increase the resistance of ground squirrels to lethal doses of x radiation, but it delayed the acute course of radiation sickness until the animals awoke. The data indicate a marked influence of the central nervous system on the radiation syndrome.

377. PONOMAREV, K.K. The effect of nuclear explosion on ferroconcrete constructions. Stroitel'stvo, no. 1, 1958, 9-13. TH4.S86 1958

Diagrams and photos of building which could withstand nuclear bomb explosions. Main subject headings are materials, reinforced concrete--blast effects and atomic bomb explosions--physical effects. Translation: JPRS L-1679-D.

378. PONOMAR'KOV, V.I. Certain peculiarities of inflammatory reaction of the peritoneum in acute radiation sickness. Meditsinskaya radiologiya, no. 2, 1959, 42-49. DNLM

The paper presents studies on the course of experimental aseptic peritonitis induced simultaneously with total irradiation. X-ray irradiation of rabbits (600-1000 r) inhibits the inflammatory process of the peritoneum, caused by 1.5% turpentine emulsion introduced into the abdominal cavity. In the course of radiation sickness there is a period during which the inflammatory reaction does not change noticeably. The length of this period is in inverse dependence to the dosage of x-rays.

379. PRASLICHKA, M., and others. Influence of the simultaneous effect of x-ray irradiation and some narcotics and stimulants on the mortality of tadpoles. Folia biologica (Praha) v. 1, no. 6, 1955, 375-380.
QH301.F6, v. 1

Tadpoles of Rana esculenta were selected for experiments to ascertain changes in the action of irradiation produced by certain narcotics and by strychnine. The control tadpoles were irradiated with a dose of 27,500 r, as were also tadpoles in a watery solution of one of the following substances: ether (0.1%), ethanol (2 and 2.5%), chloral hydrate (0.3%), avertine (irradiation in water for 5 mins. in 0.1% solution), strychnine (1:100,000, 1:50,000, 1:30,000). The average duration of survival of the tadpoles irradiated in the watery solution of narcotic substances is in all cases statistically and significantly prolonged in comparison with that in the case of the tadpoles irradiated in the water. Strychnine in a concentration of 1:100,000, which produced signs of irritation, produced sensitivity to irradiation; in concentrations of 1:50,000 and 1:30,000, which produced inhibition, it had a protective effect, in as far as the tadpoles survived the toxic action of the strychnine. It would appear that irradiation intensifies the toxic action of avertine, ether, chloroform, and scopolamine.

380. PRAVDINA, K.I., and others. Effect of x-rays on the activity of Xanthine oxidase and aldehyde dehydrase of the liver of white rats. Meditsinskaya radiologiya, no. 12, 1959, 81-82. DNLM

381. PREDMERSZKY, T. Permissible radiation doses and methods of protection from radiation. Referativnyy zhurnal, Khimiya, no. 6, 1958, abst. 18437.
QD1.A3763 1958

Translated from the original Hungarian, "Megengedheto sugardozisok sugarvedelmi modszerek," by Predmerszky Tibor, Magyar energiagazd., no. 9, 1956, 343-347. Permissible doses of radioactive radiation are presented. Measuring instruments and measures of safety technqiue for work with atomic reactors are described.

382. PROKUDINA, YE.A. Pathogenesis of adenosinetriphosphatase activity rise in the spleen upon irradiation of the head with a dose of 4,500 r. Meditsinskaya radiologiya, no. 6, 1959, 47-51. DNLM

Experiments were staged on white rats. Upon irradiation of the head with a dose of 4,500 r the author has observed a rise of the adenosinetriphosphatase activity in the spleen. A maximal rise of the enzyme activity was noted on the 5th day following irradiation, reaching 143%. The data obtained testify to the indirect character of changes observed. Analysis of specific forms of the indirect influence of penetrating radiation show it to be of a neurohumoral nature. The suprarenals are an essential part of the adenosinetriphosphatase activity rise in the spleen following irradiation of the head. However, their pathogenetic influence is fully realized only when the innervation of the organ under study is intact.

383. PROPP, M.V. Effect of ACTH and cortisone on the course and outcome of radiation sickness in white rats of different age. Meditsinskaya radiologiya, no. 6, 1959, 61-64. DNLM

The author studied the effect of cortisone and ACTH administration on the course of radiation sickness in rats of different age. Cortisone administered in the dose of 0.5-1.25 ml produces an unfavorable effect on the course and outcome of radiation sickness in all the irradiated rats (the dose was 800 and 1,000 r, irrespective of age).

384. Public health physicians in the USSR. International civil defense, Bulletin of the international civil defense organization, Geneva, May, no. 47, 1959, 2.

The training of public health specialists is carried out on the Faculties of Health and Hygiene. Between 1951 and 1955, 8,900 students were trained, and it is expected that 23,700 additional students will have followed these courses by 1965. The authorities are encouraging the conversion of chairs of hygiene into scientific research institutes, after the patterns of the Institutes of Kiev, Kharkov, and Gorki.

385. PUSHKAREVA, M.I. Diffusible toxic compounds in radiation damage in plants. Biofizika, v. 3, no. 4, 1958, 447-453. QH505.A1B53, v. 3

The preliminary experiments showed that x irradiation of bean root tips took 2 to 3 days to produce a macroscopically observable decrease in growth rate. Whether the effect was reversible or not depended on the dose. Co^{60} γ irradiation of dry seeds and seedlings of cucumbers, beans, hemp, and sunflower produced a reduction in root-hair and stem length varying exponentially with dose; the slope of the dose curve was

greatest at 500 to 5000 r for 1 day old seedlings, and 1000 to 10,000 r for dry seeds. The sensitivity to Co^{60} γ rays also varied exponentially as a function of soaking time. The conclusions from the experiments on the indirect effects of radiation (i.e. on substances produced by irradiation) are given. No biologically active substances were observed to be transferred between irradiated and normal bean seedlings grown in succession in the same water. No such substances were found in water estracts of irradiated seedlings either. Normal seedlings were not affected by being grown side by side with irradiated ones. Narrow-beam x irradiation of the central root areas in bean seedlings did not affect the over-all lengths of the roots 6 to 7 days later, but the stems were somewhat shortened. The destruction of growth stimulants by irradiation was confirmed.

386. RABINOVICH, R.M. Roentgenological observations in investigation of the lungs in animals with acute radiation sickness due to the administration of radioactive isotopes. Meditsinskaya radiologiya, no. 11, 1959, 33-36. DNLM

The author presents the results of roentgenological observations on changes in the pulmonary tissue developing in radiation sickness after the administration of P^{32} and Sr^{90}. 20 guinea pigs and 12 rabbits were under study. The radiation sickness provoked by the intramuscular injection of P^{32} (3-7 μC/gm) and Sr^{90} (21 μC/gm) is attended by changes in the lungs. The latter were manifested in the form of shadows of different size, which alternate with areas of elevated transparency of the lung tissue (emphysema). Apart from the massive shadows occupying the whole pulmonary field, there were changes very similar to the roentgenological picture of microfocal lesions. The investigations disclosed that hemorrhages in the pulmonary tissue are one of the anatomical substrates of changes in the lungs detected roentgenologically.

387. RABINOVICH, R.M., and others. Radiation lesions of the lungs and pleura in x-ray and gamma-therapy of mammary cancer. Problemy onkologii, SSSR, v. 3, 1957, 711-718. DNLM

Results are summarized from clinical and radiological examinations of the lungs during radiotherapy for mammary cancer. It was concluded that irradiation of the thoraz with therapeutic doses of penetrating radiations may cause radiation damage to the lungs, which may take several forms. It is stressed that radiotherapy should be carried out under careful radiographical control and maximum protection of the thoracic organs.

388. RACHINSKIY, F. YU., and others. Chemical means of protection against acute radiation sickness. Uspekhi khimii, v. 28, no. 12, 1959, 1488-1522.
QD1.U7, v. 28

This article was submitted by the Military Academy of Medicine im. S.M. Kirov. The following subjects are surveyed in the article: Primary effects of penetrating radiation. Efficiency of protective chemical compounds. Biological methods for the evaluation of such remedies. Information about various protective remedies. Various chemical formulas and graphs of evaluation. Has a bibliography of 269 entries. The article is highly scientific and technical.

389. RAKIPOVA, L.I. Influence of atomic explosions on the atmosphere. Meteorologiya i gidrologiya, no. 6, 1957, 53-57. QC851.M27 1957

A review of the literature indicates that the probability of development of sharply anomalous, and, in particular, catastrophic phenomena of weather, as a result of the effects of artificial nuclear explosions in the atmosphere is very small. A more natural cause of sharply expressed anomality of atmospheric processes in recent years is the increase of solar activity in connection with the approach to the maximum of the century and 11-year cycles. Main subject headings are Earth science--meteorology, Atomic bomb explosions--physical effects and climate--physical factors. Translation: JPRS L-900-D.

390. RAUSHENBAKH, M.O., and others. A study of the role of serotonin (5-Hydroxytryptamine) in the pathogenesis of acute radiation sickness. Serotonin activity of the animal blood in acute radiation sickness. Problemy gematologii i perelivaniya krovi, no. 3, 1959, 1-10.
DNLM

Serotonin, or 5-hydroxytryptamine, is a biological amine derived from indole which is widespread in organs and tissues. Physiological and pharmacological properties of serotonin are discussed. Levels of serotonin activity during radiation sickness were measured in dogs, monkeys, guinea pigs, and rats. Phasic and species variations were observed. No conclusions were reached as to the role of serotonin in the pathogenesis or treatment of radiation sickness.

391. RAYEVSKIY, B. Voprosy radiologii (Problems in radiology). Moskva, 1956, 133 p.

This book was not located in the Library of Congress. The entry was found in a bibliography of an article written for civilian defense in the USSR.

392. RAZUMOVSKIY, N.O. Conference on the problem of radiostronium. Meditsinskaya radiologiya, no. 3, 1959, 92-94. DNLM

393. Report on the civil defense in the USSR. Soviet open sources, 1937-1957. Compiled by AID, Report No. AF1092884.

An attempt is made (1) to delineate the scope of the Soviet civil defense, its organizational set-up, the manner of its implementation, and new tendencies in the defense; (2) to uncover the controls behind the Soviet civil defense organization; (3) to ascertain the role of MVD (The Ministry of the Internal Affairs) in the civil defense; (4) to discover inherent weaknesses in the system of defenses; to evaluate the effectiveness of the civil defense; and (5) to draw a comparison between the civil defense organization in the Soviet Union and in the United States. A separate chapter entitled The Place of DOSAAF in the Soviet Civil Defense is included since this organization (All-Union Voluntary Society for the Promotion of the Army, Air Force Navy) is actively engaged in the training of the civilian population for the civil defense.

394. RODIONOV, V.M. Effect of general x-rays irradiation on the restoration of serum proteins in dogs after hemorrhage. Voprosy meditsinskoy khimii, v. 4, no. 5, 1958, 327-328. RS402.V8, v. 4

The aim of this research was to study the shifts in the normal restoration picture of various fractions of serum proteins after hemorrhage following irradiation. Various tables and diagrams and electrophoretic tracings accompany the article. The authors make the following conclusions: the majority of dogs in which hemorrhage was induced 1-6 days after irradiation (by 500 r) died. In these dogs, essential changes were noted in the processes of serum protein restoration, and there was an increase in the blood stream of a type of protein having the electrophoretic mobility of alpha globulins. In dogs subjected to hemorrhage 1 1/2 months after irradiation, the serum protein restoration picture was similar to that of nonirradiated animals subjected to hemorrhage. Evidently these facts indicate that during the acute phase of radiation sickness the processes of regeneration of serum albumin are inhibited, but the organism does not lose the capacity to mobilize extravascular reserves of this protein and to use alpha-3-globulin sources as the albumin deficiency rises in the vascular bed. Translation: JPRS L-690-N.

395. ROGACHEVA, L.S. Effect of native isoplasma transfusion on the course of acute radiation sickness. Meditsinskaya radiologiya, no. 11, 1959, 62-66. DNLM

The author investigated the efficacy of native isoplasma transfusions against the background of complex therapy in dogs subjected to total irradiation in the dose of 700-800 r (LD_{95}). As demonstrated, numerous native plasma transfusions conducted at various periods of radiation sickness appeared to be an effective means of treating acute radiation sickness. Native plasma, probably, has a favourable effect on hemopoiesis and possesses disintoxicating properties.

396. ROGOV, A.A., and others. Role of the hypophysis adrenal system in the origin of reactivity changes of the irradiated organism. Meditsinskaya radiologiya, no. 5, 1959, 28-34. DNLM

The changes of the organism's reactivity following clinical recovery from acute radiation sickness were studied with registration of the activity of the hypophysis-adrenal system. The experiments were staged on 380 white male rats. The changes of the functional state of the "nonspecific adaptation system", occurring after single and repeated x-ray irradiation, are preserved following clinical recovery of rats from radiation sickness. Deviations of the functional activity of the hypophysis-adrenal system depend upon the dosage and the number of irradiations. In instances of moderate increase of incretory activity of the adrenal cortex with preservation of its functional reserves there is seen in clinically recovered animals a higher resistance to repeated irradiation, and to diphtheritic and morphine intoxication. However, if there are observed signs of functional exhaustion of the hypophysis-adrenal system in rats following clinical recovery, their resistance to repeated irradiations, diphtheritic toxin, and morphine decreases.

397. ROMANOVSKIY, I. Some problems of antichemical training of troops. Voyennyy vestnik, no. 12, 1959, 57-61. U4.V87 1959

The author, a colonel, stresses the necessity of improvement in the antichemical training of troops, with particular attention to antiatomic defense. Mentions use of gas masks, contamination areas, signals to be used and practice mock modern war chemical attacks and use of models of chemical war weapons for greater emphasis in the training. Translation: AF1419475.

398. ROMANTSEV, YE.F., and others. Khimicheskaya zashchita ot deystviya ioniziruyushchey radiatsii. (Chemical protection from effects of ionizing radiation). Moskva, Medgiz, 1958. 142 p. RA1231.R2R6

Principles of biological action of ionizing radiation are presented. Part II. Chemical protection of animals against harmful effects of radiation is examined and a survey of publications concerning this problem is given. Protection with chemical agents was approached by investigation of processes occurring in the organism during radiation, and investigation of chemical compounds capable of directing the processes in the organism, and an empirical selection of protective agents. Mechanisms of protective action are discussed.

399. ROMANYUK, N.M. The influence of different oxygen tension in the inhaled air on the course of experimental acute radiation sickness. Meditsinskaya radiologiya, no. 6, 1959, 88. DNLM

400. RONICHEVSKAYA, G.M. Reaction of testicles in white mice following total chronic gamma irradiation with Co^{60}. Meditsinskaya radiologiya, no. 5, 1959, 34-37. DNLM

Using the quantitative method the authors studied the injury and the reparative ability of the testicles in white mice following an 8-day and 3-3.5 month continuous irradiation with Co^{60} gamma-rays (100, 500, and 1,000 r, the dose rate being from 1.1 to 125 r per 24 hours). Histological preparations were examined. In irradiation with doses causing a depression of spermatogenesis, a disappearance of various types of cells of the germinal epithelium was noted at definite periods. This depended upon the biological cycle of development of these cells in the process of differentiation, and permitted to determine the duration of these cycles. In 8-day irradiation with Co^{60} gamma-rays (600-1,000 r) the reparative processes appear in the injured testicular epithelium later than after the same doses of irradiation of short duration. Another group of mice was irradiated with a dose of 1,000 r, the duration of irradiation being 3.5 months and the dose rate 8.7 per 24 hours. After a temporary period of depression of spermatogenesis the reparative processes and the partial re-establishment of spermatogenesis was noted 30 days after the beginning of irradiation (although only in 60 days following a more prolonged irradiation). The re-establishment of spermatogenesis against the background of continuing irradiation was evidently caused by the mobilization of compensatory mechanisms. After a 3-month irradiation in the dose of 500 and 100 r no radiobiological effect was revealed in the histological sections of the testicles. This may be due to the important role

played by the reparative processes in the testicle, and confirms the role of physiological regeneration as one of the factors decreasing the sensitivity of the tissues in definite conditions of irradiation.

401. ROSTOTSKIY, I.B. Soviet public health during the war years. Sovetskoye zdravookhraneniye, v. 16, no. 9, 1957, 55-62. RA727.S6, v. 16

The role of civilian and military doctors and surgeons in the development of the present system of handling military casualties is depicted from Czarist times. Hospital aid for the wounded was first organized during World War I, when a civil health service was hastily formed to locate facilities and personnel. A branch of military medicine was begun in 1919, and the two agencies organized an efficient front-to-rear lines evacuation and treatment system for the wounded and seriously ill. Scientists, consulting specialists, hospital councils, medical writers, the Military Hospital Committee, and the committee on aid to the wounded were organized to provide therapeutic care, wound treatment, physiotherapy, chemotherapy, and develop scientific methods. In 1945 the Ministry of Health was assigned the task of planning a system of hospitals for returning war wounded patients to normalcy through surgery. Main subject headings are Biological sciences--medical specialties and military medicine--USSR. Translation: JPRS L-591-N.

402. ROZNIATOWSKI, T., and others. Biologicheskaya voyna; ugroza i deystvitel'nost' (Biological warfare; threat and reality). Moskva, Izd-vo inostrannoye literatury, 1959. 330 p.

Russian translation of the Polish book: "Wojna biologiczna; grozba a rzeczywistosc by T. Rozniatowski i Z. Zoltowski. Warszawa, Wydawnictwo Ministerstwa Obrony Narodowej, 1957. The book is a survey of western literature, including Polish, in the field of biological warfare. On the basis of this survey of bacterial warfare, ways are discussed in order to protect civilians, animals, and plants. This type of warfare is said to be able to cause "mass destruction."

403. RUBIN, B.A., and others. Effect of ionizing radiation upon the chemical composition of mitrochondria. IN: Akademiya nauk SSSR. Doklady, v. 122, no. 5, 1958, 867-869. AS262.S3663, v. 122

After irradiation the content of phospholipids increases, especially in mitochondria (up to 245%). Obviously, the ionizing radiation weakens the bond between phospholipids and albumen which results in increased number

of phospholipids. The differences in the phospholipid content in irradiated and standard tubers do not disappear after a long storage. Studies of radiation effects on the chemical composition of mitochondria separates from the tissue of irradiated tubers show that the content of phospholipids and nucleic acids in tuber pulp is not affected by irradiation. Consequently, the radioinduced changes in oxidizing ferment activity should be related --mitochondria.

404. RUBINSHTEYN, YA.G., and others. Healing of fractures during various stages of radiation disease. Voyenno-meditsinskiy zhurnal, no. 6, 1957, 33-37.
RC970.V55 1957

Results of studies on the effects of whole-body radiation exposure on the regeneration of bone fractures in dogs led to the conclusion that small dosages of x-rays accelerate the growth of bone callus and stronger dosages suppress and retard its formation. Healing in puppies occurred three times as fast as in adult dogs. Translation: JPRS-518.

405. RUDENKO, OV.V. Peculiarities of the course of frostbite in radiation sickness. Meditsinskaya radiologiya, no. 3, 1959, 34-39. DNLM

The course of frostbites in the irradiated animals runs without any marked inflammatory manifestations and is of the type of dry necrosis, which has a wider and deeper distribution (III-IVth degree as compared to the I-IInd degree in the control animals). Radiation sickness coupled with frostbite runs a severer course and is accompanied by high lethality.

406. RUDERMAN, A.I., and others. A method of minimizing local irradiation reactions. Meditsinskaya radiologiya, v. 1, no. 6, 1956, 61-65. DNLM

Temporary ligatures were applied bilaterally to the subcutaneous tissue and the skin of the temporal region of rats after dermal ulcerations had developed following irradiation of the rear left extremity, to determine whether or not such a procedure would affect the healing process in the ulcers by some mechanism associated with the influence exerted by the nervous system upon neurotrophic functions. Microscopic examination of the skin areas subjected directly to radiation showed that an undoubted beneficial influence on the regenerative process has been exerted. In 21 of 30 experimental animals, the ulcers healed much better than those of the controls. In 11 experimental animals there was complete healing: this did not occur in any of the controls. Main subject headings are Biological sciences--radiobiology, radiation injuries--countermeasures.

407. Russian civil defense poster. Armed forces chemical journal, no. 3, 1959, 19. UG447.A75 1959

Summary of the poster type drawings (depicted throughout this issue) pertaining to the civil defense program of the USSR. The posters have typed in English equivalents for the Russian CD instructions. The poster sets, which are used for CD instruction purposes, cover the entire range of civil defense procedures, including shelters, fire-fighting, and blackout, as well as measures for dealing with nuclear, chemical, and biological warfare attacks.

408. RUZER, L.S. A calculation of inhaled radon doses. Atomnaya energiya, v. 4, no. 2, 1958, 144-148. QC770.A83, v. 4

Radon physiological effects and dosage determination.

409. RYBAKOV, A.I. Peculiarities of treatment in damage to the lower jaw in conjunction with radiation affliction. Voyenno-meditsinskiy zhurnal, no. 2, 1958, 44-48. RC970.V55 1958

Experiments carried out on 50 dogs and 25 rabbits are described. Results are presented in terms of the experiments conducted on dogs, 20 dogs were irradiated with 400 roentgens, while 20 dogs received 500 roentgens and 10 dogs were not irradiated. All 50 dogs received a gun-shot wound from a small caliber pistol in the lower jar. Surgical treatment of the wounds was given at 6, 24, and 48 hours after inflicting the wounds with radiation.

410. RYSINA, T.N., and others. Effects of γ rays on the absorption spectra of pyrimidine and purine bases, and of nucleic acids. Biofizika, v. 3, no. 4, 1958, 487-493. QH505.A1B53, v. 3

Doses of from 1000 to 200,000 r of Co^{60} γ rays reduce the ultra-violet absorption of the biologically most important purines and pyrimidines, and also of the nucleic acids, partly at the lower concentrations (5×10^{-5} to 10^{-4} M). The loss in optical density increases with the γ ray dose. Additional groups attached to the purine or pyrimidine rings decrease the radio-sensitivities.

411. SAKHAROV, A.D. Radioactive carbon from nuclear fission tests and "thresholdless" biological effects. Atomnaya energiya, v. 4, no. 6, 1958, 576-580. QC770.A83, v. 4

Calculation of the losses of human life by the effect of C^{14} is based upon the following assumptions: (1) In the next thousand years the total population of the Earth will amount to 30 billion. (2) Irradiation of reproductive glands with a dose of 1 r causes 10 cases of sickness among descendants. (3) Losses are trebled by other "thresholdless" biological effects. The number of persons afflicted with hereditary diseases caused by one MT bomb was calculated 2,200. If all possible effects and all explosions are taken into account, the total losses of human life will be 330,000; if the victims of Sr^{90} contamination are included, total losses will be 500,000 persons. The author also states that the actual number of victims is equal to 1 million people and there will be an increase at a rate of 200-300 thousand people per year. There are 7 references, 3 of which are Soviet.

412. SAMOYLOVA, L.G. Influence of low doses of chronic total x-ray irradiation on the higher nervous activity and certain vegetative functions of white rats. Meditsinskaya radiologiya, no. 8, 1959, 13-17.
DNLM

The author studied reactions of 16 white rats, after the method of Kotlyarovsky, the dynamics of changes of the higher activity under the influence of whole-body chronic roentgen irradiation. The single dose amounted to 0.1 r, the irradiation was carried out every other day, the total dose for 4 1/2 months being 5 r. First of all the animals displayed signs of weakening of internal inhibition, then there developed supraliminal inhibition manifested by phasic phenomena, consecutive inhibition and exhaustion of cortical cells. After the irradiation was discontinued a relative normalization of cortical dynamics occurred. The irradiation did not exert a noticeable influence on the weight and temperature of the body, as well as on the content of erythrocytes and leukocytes in the peripheral blood. Some differences in the markedness and duration of higher nervous activity disturbances in the irradiated animals partly depended upon their typological features.

413. SAUROV, M.M. Radioactive contamination of fish in water containing strontium. IN: Vsesoyuznaya konferentsiya po meditsinskoy radiologii. Moskva, 1957. Voprosy gigieny i dozimetrii. Trudy. Moskva, Medgiz, 1957, 66-73.

In fish tissue under prolonged contact with water containing radioactive strontium there occurs an intense accumulation of strontium. With this a direct relation has been established between the degree of accumulation of radioactive strontium by tissues, on the one hand, and the activity of the water, the time of accumulation, and the contents of calcium in the tissues, on the other.

The intensity of accumulation is inversely related to the concentration of the calcium in the water. The maximum permissible concentrations of radioactive strontium for water in open reservoirs has been established without allowing for the possibility of its accumulation by water organisms; suitable correction factors are thus necessary. Translation: AEC-tr-3746.

414. SAUTIN, A.I. Dosimetry of wounds and burns contaminated by radioactive substances. Voyenno-meditsinskiy zhurnal, no. 4, 1957, 19-21. RC970.V55 1957

A procedure is described for using a beta-gamma radiometer for determinations of the degree of radioactive contamination of wounds and burns. Translation: AEC-tr-3625.

415. SAVIN, V.R., and others. Efficacy of antibiotics in conditions of experimental infection in radiation sickness. Meditsinskaya radiologiya, no. 3, 1959, 79-80. DNLM

416. SAVITSKIY, I.I. Chto nuzhno znat' dlya zashchita ot porazheniya s vozdukha (What should be known about defense against air attack). Moskva, DOSAAF, 1957. 94 p. illus. UA926.S3

Detection of radioactive, poisonous, and bacteriological pollution of air. Modern means of attack and its effects. Duties and rules to be followed by the population in case of a declared emergency. Means of protection. Fighting of incendiary weapons. Fundamentally military science. There are translations of two excerpts entitled: "What are toxic agents and how they affect man", and "What are bacteriological weapons", p. 10-19. Translation: AF1187236.

417. SCHASTLIVTSEVA, A.A. Changes of the nervous apparatus of the spleen in experimental irradiation of animals. Meditsinskaya radiologiya, no. 11, 1959, 82-84. DNLM

418. SEDOV, V.V. First All-Union Conference on Medical Radiology. Atomnaya energiya, no. 2, 1956, 98-100. QC770.A83 1956

Held under the auspcies of the Ministry of Health of the USSR. Lists men in various specialities of interest.

419. SELIVERSTOVA, L.A. Effect of Co^{60} γ-rays upon riboflavine synthesis by yeasts. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 3, 1959, 412-417. AS262.A6 245 1959

Gamma radiation of Co^{60} causes significant changes of riboflavine synthesis in the proximal progeny of the irradiated yeast cells and yeast-like organisms. The amount of free and loosely bound riboflavine in the proximal cell generation of Saccharomyces cerevisiae, strain A, irradiated with 60 and 100 kr is reduced by 40 to 50% versus the non-irradiated yeasts. The total riboflavin content of these cells is 25 to 30% less than in the control ones. With the increase in the irradiation dose the capacity to accumulate riboflavin from the nutrient medium increases in the next progeny of the irradiated Saccharomyces cerevisiae cells, strain A. With the increase in the irradiation dose the content of free and loosely bound riboflavin increases in the next generations of the irradiated cells of yeast-like organisms such as Torulopsis utilis and Candida Guilliermondii.

420. SEMENOV, D.I., and others. The action of chelating compounds on tissue storage and excretion from the living organism of radioyttrium, radiocerium, and plutonium. Biokhimiya, v. 23, no. 1, 1958, 59-65. QH301.A3 43, v. 23

Chelating agents, binding metal cations to form soluble, stable chelates under the conditions of the living organism, exert a pronounced effect on the radioisotope of yttrium, cerium, and plutonium in the living organism. The data obtained attest to the fact that, aside from the stability of the compounds formed, essential significance in determining the effectiveness of chelating agents may be assigned to the rate of the complexing process, and also to the physicochemical state of the metal in the blood stream and in the body fluids. The results cited and the conclusions drawn from them point to a possible role of naturally occurring complexions in the living organism in mineral metabolism. The effectiveness of uranyldiacetate, exceeds that of ethylenediaminetetraacetate, and lends itself to utilization for the treatment of heavy-metal poisoning and radioisotope poisoning.

421. SERGEL', O.S., and others. Cytochemical luminescence study of blood and bone marrow in radiation sickness. Vestnik rentgenologii i radiologii, v. 32, no. 5, 1957, 76-81. RM845.V4, v. 32

Serial blood studies in 25 patients undergoing telegammatherapy were used to show the value of luminescent analysis for early diagnosis and prognosis of radiation sickness. The sensitivity of blood luminescence to small doses of radioactive isotopes was shown in studying

73 patients suffering from chronic radiation sickness. Tracer doses of I^{131} in thyroid cases and Na^{24} in animals modified blood luminescence as early as 30 to 60 minutes after injection. These changes varied in accordance with the initial picture. The luminescent analysis was found to be highly sensitive and useful for spotting changes caused by ionizing radiation.

422. SERGEL', O.S., and others. Effect of indicator doses of certain radioactive isotopes on the luminescence of blood and bone marrow. Vestnik rentgenologii i radiologii, v. 34, 1959, 59-61. RM845.V4, v. 34

Studies were made of the effect of administration of a single indicator dose of I^{131} on the blood in clinical conditions and Na^{24} on the blood and bone marrow in experimental conditions. I^{131} was administered in the dose of 2 to 20 mc for diagnosis in various diseases of the thyroid gland. The effect of Na^{24} on rats and rabbits was studied by intravenous injection of the preparation in the dose of 1 to 2 mc per kg of body weight. The cytochemical luminescent microscopical analysis of native preparations reveal changes in the color and brightness of luminescence of the cellular elements of blood plasma and bone marrow. These changes appeared in a number of cases in 15 to 20 minutes and remained during 1 to 3 days after administration of the preparation. The character of changes was different depending on the initial condition.

423. SHABADASH, A.L., and others. Cytochemical changes in nucleoproteids of nerve cells in mammals, observed at early stages of radiation injuries. IN: Akademiya nauk SSSR. Doklady. v. 128, no. 6, 1959, 1290-1293. AS262.S3663, v. 128

The physiocochemical properties of mitochondria ribonucleoproteids (RnP), considering the morphology of the cell organoids, were studied in white mice weighing 220 to 250 g and exposed to radiation doses of 1000 r at 150 to 192r/min.

424. SHAKHIDZHANYAN, L.G., and others. Measurement of natural radioactivity in human organs. IN: Akademiya nauk SSSR. Doklady, v. 125, no. 1, 1959, 208-209. AS262.S3663, v. 125

Data are presented on the natural radioactivity of human organs determined by measuring the radioactivity of ashes. The natural activity of various organs (β radiation) is tabulated. The results show that the general activity exceeds the activity induced by K^{40} and 20 to 30% and in some cases up to 70 to 80%. The γ activity of some organs measured with a γ-scintillation spectrometer showed that additional radioactivity was generally induced by Cs^{137} from fall-out entering the body following the chain of contamination:

land-plants-animals-man. The data also show that the contamination reaches all the organs and tissues in humans.

425. SHAL'NOVA, M.N. On the formation of toxic agents during radiation sterilization. Zhurnal obshchey biologii, no. 19, 1958, 234-238. QH301.Z55 1958

Studies showed that in irradiated yeasts grown for a time after irradiation, biologically active and toxic substances are formed which noticeably influence the respiratory processes of the indicator yeast cultures, and the activity and viability of amoebae fed with irradiated yeasts. Implications of the findings on the wholesomeness of irradiated foods are discussed briefly. Translation: JPRS-1413-N.

426. Shanghai Division of the Chinese Physics Society. Yüan tzu chieh kuo (The structure of atoms). Shanghai, Higher Education Press, 1958. 69 p.

This book is designed primarily for students of atomic physics. It deals with the structure of atoms in relation to the electron belts. There are explanations of artificial breakdown of these electron belts to form isotopes. Following this is information of natural and artificial radiation; its uses and production, with descriptions of some of the machines such as high speed accelerators used in the production of radioactive isotopes. The book ends with more detailed information on the structure of atoms, the characteristics of uranium in fission and chain reaction, and applications of atomic energy.

427. SHAPIRO, F.B. The fertility of mouse females subjected to irradiation at the period of embryonic development, and the viability of their progeny. IN: Akademiya nauk SSSR. Doklady, v. 125, no. 4, 1959, 921-924. AS262.S3663, v. 125

Experimental data indicate lower fertility of female mice whose estrus cycle was not affected when irradiated during ovulation period. Irradiation of female embryo during ovary maturation even with low doses has a considerable sterilizing effect and reduces the viability of the progeny.

428. SHAPIRO, F.B., and others. Variation in the sex ratio in mice, as a possible result of γ-irradiation of their embryos. IN: Akademiya nauk SSSR. Doklady, v. 122, no. 2, 1958, 215-218. AS262.S3663, v. 122

The fertility of mice irradiated during gonad development and the secondary sexual organ development period in embryos was investigated. The data were used for further studied of the possible influence of gamma radiation on sex ratios in mice.

429. SHAPRIO, I.M. Action of ionizing radiation on cell division (an investigation of local and remote effects). Biofizika, v. 3, 1958, 446-453. QH505.A1B53, v. 3

X rays have both a local and distant action on the process of cell division. The local effect appears as: a sharp fall in the number of mitosis in the first hours after irradiation; the appearance of cells with chromosomal aberration; the absence of relationship between the effect of radiation and the dimensions of the area of the body irradiated at one time. The distant action: leads to a less pronounced depression of mitotic activity which appears later; does not cause the appearance of chromosomal aberration; has an effect which depends on the volume of body tissue irradiated. In experiments on parabiotically joined mice it has been shown that the distant action of radiation on cell division is effected by means of factors which circulate in the blood. It was found that the halving of the concentration of the mitosis-suppressing factors in the blood of the parabionts leads to a reduction by approximately one half in the distant effect.

430. SHAPIRO, I.M., and others. On chromosome aberrations and mitotic activity subsequent to exposure to ionizing radiation under conditions of protection with carbon monoxide (on the problem of reparation of radiation injury). IN: Akademiya nauk SSSR, Doklady, v. 125, 1959, 654-657. AS262.S3663, v. 125

Data are reported on the chromosome aberrations and mitotic activity in mice subsequent to irradiation with 900 r of Co^{60} γ rays (565 r/min) protected by carbon monoxide. It is shown that hypoxy during irradiation is a helpful factor in the regeneration of the mitotic ability of cells.

431. SHAPIRO, I.M. On nuclear injuries in dormant cells of an animal organism, produced by ionizing radiation. IN: Akademiya nauk SSSR. Doklady, v. 124, no. 3, 1959, 681-684. AS262.S3663, v. 124

Experiments were carried out in order to determine the changes in chromosome disturbances in white mice dormant liver cells at various periods after exposure to 500 r.

432. SHAPIRO, N.I., and others. Antibiotics to reduce radiation effects. IN: Akademiya nauk SSSR. Doklady, v. 130, no. 4, 1960, 904-907. AS262.S3663, v. 130

The positive results obtained with the use of antibiotics in radiation sickness are generally ascribed to their antibacterial action. Recent experiments at the

Institute of Biological Physics, USSR Academy of Sciences, have demonstrated the existence of another mechanism of the inhibiting action of the antibiotics on the biological effects of radiation. Results show that streptomycin introduced into mice either prior to or following their irradiation is an effective means for reducing the radiation effect on cells. This effect is not associated with the mechanism of its antibacterial action. Further research is being done on the protective action of streptomycin and its effects on the radiation sensitivity of the living cells of mammals.

433. SHAPIRO, N.I., and others. Estrogens and the natural sensitivity of mice to x-rays. IN: Akademiya nauk SSSR. Doklady, v. 122, no. 5, 1958, 802-805. AS262.S3663, v. 122

Analysis of the tabulated experimental data indicates that radiosensitivity responses of normal and castrated female mice do not differ. Also, radiosensitivity of female mice at various estral cycle stages remains unchanged.

434. SHAPIRO, N.I. Genetic danger of low doses of ionizing radiation for man. Meditsinskaya radiologiya, no. 2, 1959, 67-77. DNLM

435. SHAPIRO, N.I., and others. On the "Oxygen effect" observed in the case of radiation injuries in vegetable and animal cells. IN: Akademiya nauk SSSR. Doklady, v. 126, 1959, 191-194. AS262.S3663, v. 126

An attempt was made to show the presence of oxygen effect, not related to aqueous radiolysis, on samples of barley seed and ascitic cells of Erlich carcinomas in mice. Chromosome aberrations were used as the indicators of radiation injuries.

436. SHARPENAK, A.E., and others. Influence of ionizing radiation on the body in different histidine content in the food. Meditsinskaya radiologiya, no. 6, 1959, 37-41. DNLM

Studies on the effect of ionizing radiation, carried out against the background of diets containing different amounts of histidine, revealed that the activity of liver histidase sharply increases in rats receiving low histidine diets, aggravating the histidine deficiency of the food. In 10-15 days following irradiation the leukocyte count decrease is less pronounced in rats receiving a surplus of histidine with food. The drop of the content of globin, heme, erythrocytes in the blood and a decrease of the weight of the spleen observed in a number of irradiated rats may, in the majority of cases, be alleviated by raising the

histidine content in the food. In 10-15 days following irradiation the blood pressure tends to rise, which is sharply marked in animals receiving low histidine diet. Extracts of the liver and other organs of irradiated rats given deficient or normal content of histidine with food, completely lose the ability to absorb oxygen in their incubation with histamine. The tissues of animals given a surplus of histidine retain this ability. Histidine lowers the unfavorable action of ionizing radiation of the organism. The latter should be taken into consideration in the elaboration of prophylactic diets against radiation sickness.

437. SHAVTSOV. Command of the sea. Voyennaya mysl', no. 7, 1955, 3-17. U4.V82 1955

The author discusses the role of the various arms of the Navy in a future naval war, and indicates Soviet views on the main lines along which, in such war, the struggle for the command of the sea should develop. He also describes the effect of the appearance of the atomic weapons on the tactical and operational characteristics of the submarines and on their role in a future naval war. Summary: AF1097365.

438. SHCHEPOT'YEVA, YE.S. Energy of radiation and some rules governing their effect upon biological objects. Atomnaya energiya, v. 1, no. 4, 1956, 139-146. QC770.A83, v. 1

The present work explains modern conceptions concerning the primary physical and chemical link in the mechanism of the biological effect of ionizing rays as well as some rules connected with the spatial distribution of radiation energy in the organism.

439. SHCHUKANOV, B. Instruction of pilots in anti-atomic defense. Sovetskaya aviatsiya, 10 Mar 1957, 2.

The article gives some data on the altitude Soviet pilots are taught to adopt in certain situations resulting from atomic attacks. Summary AF1129152.

440. SHEKHTMAN, YA.L. On the primary mechanism of the biological effect of radiation. IN: Akademiya nauk SSSR. Izvestiya. Seriya biologicheskaya, no. 2, 1959, 172-185. AS262.A6245 1959

The derangement of the mitotic capacity of the cell as caused by radiation is primarily associated with the cell nucleus rather than with cytoplasm. In contrast to cytoplasmic structures, the nucleoprotein structures of the nucleus are unique, and local injury of even

a single structure calls forth profound disturbances of the rhythm and sequence of the multiplication processes of nucleic acids and of protein synthesis. The capacity of the cell to normal division is thereby lost and the cell dies, eventually after several atypical divisions. In the embryonic material irradiated at early stages of development distinct maxima and minima of radio-sensitivity are noted corresponding to certain phases of karyokinesis. Analysis of radiosensitivity of two cultures of B.coli the normal and glucose one, irradiated with x rays and alpha rays of polonium has revealed certain regularities which suggest the presence in the glucose culture of a polyploid structure of nuclear substance. These findings comply with similar results obtained by Ogg and Zelle in the camphor and normal culture of B. coli. Thus it appears that most promising for the protection and therapy of the radiation disease are those methods which are based on the stimulation of the reparative processes within the irradiated organism, such as the use of emulsions of bone marrow tissue, transfusion of blood and of its substitutes, and transplantation of organs.

441. SHEKHTMAN, YA.L., and others. The X- and Poα-irradiation dose curves for B. coli communis. Biofizika, v. 3, no. 4, 1958, 479-486. QH505.A1B53, v. 3

B. coli cultures from meat-peptone agar containing 2% glucose showed cells 2.6 times as long (18 times as large) as normal. The survival curves with x rays and Poα rays were S-shaped for the glucose cultures, which agreed with the classical target theory. The properties of the glucose culture were not inherited, and the culture returned to normal after subculturing once on normal meatpeptone agar. The dose curves are interpreted in terms of a theory of the differing roles of nucleoproteins and cytoplasmic proteins. The curve found with the glucose culture is interpreted as arising from the superposition of nuclear and cytoplasmic effect.

442. SHENYAKOV, S.I. Some data of medical observations at radar and radio stations. Voyenno-meditsinskiy zhurnal, no. 5, 1955, 79-83. RC970.V55 1955

Article refers to radar, UHF, and USW stations. Attention is called to the fact that the Soviet classification of USW may be different from that used in this country. The author is a Lieutenant Colonel in the Medical Service. Tells of harmful effect on workers in ultra-high frequencies and USW stations. Translation: AF728080.

443. SHEPSHELEVICH, L.L. Influence of blood loss on the erythropoiesis in radiation sickness. Meditsinskaya radiologiya, no. 11, 1959, 77-81. DNLM

444. SHEPSHELEVICH, L.L. Iron metabolism in radiation sickness. Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 2, no. 1, 1958, 27-33.
R91.P66, v. 2

After total x irradiation of rabbits with a dose of 200 r, a brief suppression of erythropoiesis is seen. With the action of 600 roentgens, a considerable depression of hemoglobin-formation is noted as early as the first day after the irradiation. At later periods, the erythropoietic function of the bone marrow is partially recovered, but remains decreased for a month. Total irradiation of dogs with large doses of x rays (600 roentgens) produces a significant depression of erythropoiesis as early as the first few hours after irradiation and an almost complete cessation of hemoglobin-formation in the majority of animals on the first to second day. However, the bone marrow at this time, in certain cases, still contains a significant number of red cells (15-35 percent), which apparently are incomplete in a functional sense. In the irradiation of dogs with large doses of x rays, an accumulation of intravenously injected Fe^{59} occurs in the liver and kidneys, which, apparently is induced by general disturbances of metabolism and the suppressive effect of ionizing radiation on hematopoiesis. Determination of the serum iron in combination with the morphologic analysis of the bone marrow and the peripheral blood can serve as an important index characterizing the condition of hematopoiesis and of blood destruction in radiation sickness. Apparently, as early as the first day after total irradiation of dogs with large doses of x rays (600 r) preparations should be used which make possible the activation of the bone marrow and the recovery of erythropoiesis. Translation: JPRS-283.

445. SHERMAT, Z.I., and others. Changes of mucopolysaccharide content and of hyaluronidase inhibitor activity in the blood and tissues during acute radiation sickness. Meditsinskaya radiologiya, no. 12, 1959, 25-36. DNLM

The authors studied the changes in the amount of polysaccharides and the hyaluronidase activity in the tissues of the small intestine, stomach, lungs, and blood serum of guinea pigs, white rats, and dogs at various period of acute radiation sickness. Mucopolysaccharides were determined by the content of glucosamine and tyrosine employing Elson and Morgan's method and by the amount of mucoid isolated by Glass-Boyd's method. Biological membrane permeability,

viscosimetric and mucine clot formation methods were used for the determination of the fermentative activity of hyaluronidase. A decrease of mucopolysaccharide content was noted in the tissues of the small intestine, stomach, lungs, and liver during the development of radiation sickness in guinea pigs. In rats a short-term reduction of mucopolysaccharide content was observed in the small intestine; in the rest of the tissues its rise was revealed. Serum mucoproteid content increased in all the animals after the irradiation. No rise of the hyaluronidase activity was noted under the effect of irradiation in the tissues investigated. Properties of the blood serum and of some tissue extracts inhibiting hyaluronidase activity were increased. Experimental treatment of acute radiation sickness with hyaluronic acid and vitreous body was of no avail.

446. SHEVELEV, A.S. Vaccinal tularemic infection in guinea pigs in conditions of radiation injury. Byulleten' eksperimental'noy biologii i meditsiny, no. 5, 1959, 60-64. R91.B56 1959

From the Department of Microbiology of the Smolensk Medical Institute. Different doses of x-rays (from sublethal to DL50-70) administered 24 hours before the vaccination or 24 hours after it do not cause exacerbation of the vaccinal tularemic infection in guinea pigs immunized with live microbes of vaccinal B. tularense strain. As shown no reversion of the vaccinal B. tularense strain is possible in these conditions. In our experiments irradiation had a more pronounced effect on the allergic reconstruction of the body than on the formation of the antibodies, and this is probably due to a more pronounced radiosensitivity of the mechanisms effecting the process of allergization of the body as compared to those of antibody formation. (Tularemia is one of the most powerful bacteriological agents which could be used in CBR warfare).

447. SHEVTSOVA, Z.V. Effect of x-ray irradiation on the course of vaccinal process caused by the administration of living brucellosis vaccine to animals. Meditsinskaya radiologiya, no. 10, 1959, 46-53. DNLM

Investigations were conducted on white rats (the irradiation doses being 300 to 600 r) and guinea pigs (with the irradiation doses of 150 to 250 r). It appeared that immunization with vaccinal brucella culture at the height of radiation sickness increases the death rate of the irradiated animals. As demonstrated by bacteriological examination, development of generalized vaccinal process in the irradiated and immunized animals pursued the same course as in

the immunized non-irradiated animals. This process was manifested in the dissemination of brucella vaccinal strain in various organs. However the irradiated animals become cleared of the vaccinal culture at a somewhat slower rate than in the non-irradiated ones. In guinea pigs, irradiated previous to vaccination (24 hours, 3 days or 10 days in advance) there was a slower formation of agglutinins with lower titre than in control non-irradiated animals. Opsonic phagocytic blood index was somewhat lower only in the animals irradiated 24 hours previous to the vaccination. When irradiating white rats 24 hours or 10 days in advance or 24 hours after the vaccination, a delay in the agglutinin production has been observed during the first days following the vaccination.

448. SHIKHODYROV, V.V. Distant consequences of affections (diseases) caused by ionizing radiation. Atomnaya energiya, no. 2, 1957, 188. QC770.A83 1957

Article gives information given at a medical conference about the effects of ionizing radiation from the various experiments done by various listed men.

449. SHIRSHOVA, R.A. Atomic pavillion of the all union industry exhibition; Department for agriculture and biology. Atomnaya energiya, v. 2, no. 6, 1957, 566-568. QC770.A83, v. 2

This department shows the result of research work carried out concerning the biological effect produced by radiation upon the organisms of animals and plants.

450. SHITIKOVA, M.G. Blood destruction in radiation sickness and the effect of hemotherapy on this process. Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 2, no. 1, 1958, 22-27. R91.P66, v. 2

The effect of ionizing radiation of the body is accompanied by an increased destruction of erythrocytes beginning with the first few days after irradiation. Increased bilirubin excretion after irradiation occurs in the form of two phases. The first phase, under conditions of our experiments, is observed from the second through the sixth to 14th day; the second phase, from the 14th to 18th through the 23rd to 30th day. Early transfusion of freshly citrated blood exerts favorable effect on the general condition of the animal and on hematopoiesis; increased bilirubin excretion thereby is not the direct reflection of the increased destruction of the receipient's erythrocytes. Preliminary transfusion of a solution of heterologous hemoglobin decreases the initial hemolysis of erythrocytes with the development of radiation sickness. The influsion of colloidal infusion (during the first three days after irradiation in combination with the primary transfusions of heterologous hemoglobin solution)

decreases the destruction of erythrocytes during the first and second phases. The utilization experimentally of animals with biliary-ureteral anastomoses makes it possible to study more profoundly the dynamics of blood destruction in radiation sickness and to evaluate appropriately the completeness of the pathogenetic methods of therapy of radiation sickness. Translation: JPRS-282.

451. SHLYK, A.A. Metod mechenych atomov v izuchenii biosinteza khlorofilla (Tagged atom method of studying the biosynthesis of chlorophyll). Izd-vo AN BSSR, Minsk, 1956. 298 p. QK898.C5S5

The study of the biosynthesis of chlorophyll by many investigators is presented. An attempt to apply such physico-chemical methods as the method of tagged atoms and chromatography in the investigation of the chemism of the natural synthesis of chlorophyllis is presented. Translation: AEC-tr-3541.

452. SHMELEVA, N.I. Reaction of hematopoietic organs of irradiated animals to operative procedure. Meditsinskaya radiologiya, no. 2, 1959, 55-59. DNLM

The author studied the influence of surgical operation on the course of radiation sickness and the state of hematopoiesis in irradiated animals. The experiments were staged on 114 rats, a number of which was subjected to x-ray irradiation in the dose of 550 r without the operation; a number of animals underwent the operation of exarticulation of the right posterior extremity without irradiation, while some animals were subjected to the same operation 1, 3, 30 days following x-ray irradiation. The leukocyte count and white blood formula were studied in all groups of experiments. Besides, analysis of myelograms and the count of the absolute number of nucleo-containing cells in the bone marrow were carried out on the 12th and 21st day following irradiation. The experiments show that additional trauma (surgical operation) stimulated the regenerative ability of the hematopoietic tissue. In the operated animals there was seen a more rapid increase of the leukocyte count in the peripheral blood, reaching the initial levels towards the 21st day. Similar results were observed in the counting of the absolute quantity of cells in the bone marrow, as well as in analysis of myelograms. A stimulating effect of trauma on the process of hematopoiesis was noted in all series of experiments, however it was most pronounced when the operation was carried out on the first day following irradiation.

453. SHTEDING, M.N., and others. Question of utilization of polymeric materials based on polyvinylchloride for the manufacture of means for individual protection against radioactive radiation. Khimicheskaya promyshlennost', no. 7, 1956, 408-411. TP1.Z6 1956

A method for comparative evaluation of the sorption - desorption properties of polymeric materials has been developed. The effect of the individual components of polyvinylchloride plastic formulations on their sorption - desorption characteristics has been investigated. Formulations for polyvinylchloride plastics which combine ease of cleaning from radioactive contamination with the necessary range of physico-mechanical and processing characteristics have been developed. These materials may be used for the manufacture of the personal protective equipment and the various protective films required in work with radioactive substances. (Author's conclusions) Main subject headings are Biological sciences--radiobiology, vinyl polymers--applications, radiation injuries--countermeasures, protective clothing--materials.

454. SHURA-BURA, B.L. Employment of different chloride electrolysis products as new sporocidal preparations. Zhurnal mikrobiologii epidemiologii i immunobiologii, no. 6, 1959, 58-62. QR1.Z5 1959

These experiments were conducted by the military medical order of Lenin academy im. Kirova.

455. SHVEDOV, V.P., and others. Radioactive fall-out in the neighborhood of Leningrad. Atomnaya energiya, v. 5, no. 5, 1958, 577-582. QC770.A83, v. 5

The density of fall-out is represented graphically in the logarithmic scale for the period from April 1, 1954 to December 31, 1957. There are five figures and two tables.

456. SIMONOV, P.V. Regular changes of leukocytic reactions due to the introduction of sodium nucleate to animals with radiation sickness. Meditsinskaya radiologiya, no. 21, 1959, 80. DNLM

457. SINEV, A. Training of flak personnel under atomic warfare conditions. Krasnaya zvezda, no. 134, June 1956. U4.K78 1956

Methods of training Soviet flak personnel in action under conditions of atomic and chemical warfare. Other description includes typical defects and irregularities committed by the personnel of a flak battery, during an exercise under atomic warfare conditions. Translation: AF1045141.

458. SIPOVSKIY, P.V., and others. Importance of orthostatic disturbance of blood circulation in total x-ray irradiation of rabbits. Meditsinskaya radiologiya, no. 3, 1959, 80-81. DNLM

459. SIVINTSEV, YU.V. Radiometry of internal irradiation. Meditsinskaya radiologiya, no. 7, 1959, 81-86. DNLM

460. SKALKA, M. Excretion of bromsulfalein following x-ray irradiation of the upper part of the body in mice. Meditsinskaya radiologiya, no. 3, 1959, 25-26. DNLM

The author carried out studies on the excretion of bromsulfalein in mice following x-ray irradiation of the upper part of the body (head, the greater portion of the chest, and forelegs). It was established that on the second week following irradiation with lethal doses (2,000-4,000 r) the excretion of bromsulfalein has noticably slowed down. This points to an important injury of the liver, established by histological analysis. The author concludes that changes in the liver on the second week after irradiation are indirect, caused by lesions in other parts of the body.

461. SMIRSKI, A. Military veterinary (service) on motorized routes. Zolnierz wolnosci, (Warszawa) 16 Oct 1959, 3.

Gives research activity conducted at the Central Military Veterinary Center (Wojskowy Centralny Osrodek Weterynarii). The report is accompanied by photographs showing a mobile veterinary laboratory (rear view), pH meter, personnel operating on an animal, and personnel doing histological studies. The experimental research section of the Center has progressed in combating various contagious diseases among animals. Its well-equipped laboratory also conducts experiments for the current requirements of the Army, including experiments on the preservation of meat under field conditions. Referring to the danger of ABC warfare and the existence of installations engaged in biologicals warfare research, such as Camp Detrick, the article points up the need for this type of research to be prepared for any eventuality. Protection against various types of epizootic diseases is consequently of concern to the center. The Center is reported to have discovered rapid and effective methods of detecting and combating various types of contagious diseases among animals, including leptospirosis and tularemia. New methods being prepared by the Center are aimed at establishing a "powerful barrier" between the animal kingdom and human beings. The Center is also concentrating its efforts on the protection of animals against radiation and the effects of chemical weapons. Cited in the personnel at the Center were Wladyslaw Jonczy, 30 years military

veterinary service, and Anatola Sienkiewicza and Mieczyslaw Chaykowski, apparently laboratory technicians. The author is a captain. Claims of Japanese people infected 3000 Chinese prisoners of war with bacteria at end of last war. States that the center is not a big as Camp Detrick.

462. SMOLJENOVIC, D. Grouping of forces for attack when the use of atomic weapons is in prospect. Vojno delo, no. 2, 1956, 12-20. U4.V9255 1956

The author examines the effects of atomic blows on troops on the battlefield, and suggest ways of reducing the troops' vulnerability by modifying their battle formations. Summary: AF1083810.

463. SMORODINTSEVA, G.I. Influence of cysteineamine on the respiration and blood pressure (to the mechanism of the protective action of cysteine-amine). Meditsinskaya radiologiya, no. 7, 1959, 40-46. DNLM

The influence of a therapeutic dose of cysteine-amine on the blood pressure and respiration was studied. The investigations, staged on cats irradiated with 500 and 700 r, revealed that the best protective effect following the administration of cysteine-amine took place when the dose amounted to 75 mg/kg. All the cysteine-amine doses studied (30, 50, 75 and 100 mg/kg) produce a drop in the blood pressure and stimulation of respiration. The respiratory stimulation caused by cysteine-amine introduction is weakened by cutting of the vagus nerves, denervation of carotid sinuses, or preliminary introduction of hexonium.

464. SOKOLOV, S.S. Zazhivleniye ran pri luchevoy bolezni (Healing of wounds in radiation sickness). Leningrad, 1956.

This is a book on civilian defense that could not be located in the Library of Congress. The entry was found in a bibliography of an article concerning Soviet civilian defense.

465. SOKUROVA, E.N. A comparison of the effects of α -and β -rays on microorganisms. Biofizika, v. 3, no. 4, 1958, 474-478. QH505.A1B53, v. 3

The results show that α particles depressed the development of bacteria much more than did β particles. This agrees with published data. When Po^{210} was used at concentrations such to give doses equivalent to those producing stimulation with β rays, it greatly depressed the development of root-nodule bacteria and Azotobacter. A mixed α and β emitter (Ra) gave an intermediate effect; it can stimulate somewhat after depressing development more or less strongly. Energy production and nitrogen

fixation were more sensitive to α rays than to β rays.

466. SOLODIKHINA, L.D. Natural radioactivity of rainfall. IN: Akademiya nauk SSSR. Izvestiya. Seriya geofizicheskaya, no. 2, 1959, 276-283. QC801.A35 1959

It was found that the magnitude of specific activity in precipitations falls with an increase in precipitation. The concentration of observed radioactivity is expressed in the following order: granular snow, showers, snow flakes, and steady rain. Analysis of 46 samples at 3150 and 2200 m elevation shows that rains wash out radioactive substances in the lower layers of the atmosphere.

467. SOLOPAYEVA, I.M. Radioautography studies of rat sarcoma during sarcolysin therapy. Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 2, no. 1, 1958, 44-49. R91.P66, v. 2

The rate of synthesis and the amino acid content of protein in transplanted rat sarcoma were studied using sulfur-35-labeled methionine. Nucleic acid synthesis was studied with phosphorus-32. Microradiographic techniques were employed. The therapeutic effects of sarcolysin injections on the tumors were evaluated and reaction mechanisms are discussed. Translation: JPRS-286.

468. SOLOV'YEV, V.K. Fiziologicheskiye osnovy trenirovki v protivogazakh (Physiological basis of gas masks training). Moskva, 1958. 104 p. Slavic Microfilm QP1337 neg.

Main subject headings are personnel supplies and personal equipment, and gas masks--physiological effects.

469. SOSINA, B.M. Development of roentgenology and radiology in White Russia during the years of Soviet power. Vestnik rentgenologii i radiologii, v. 32, no. 5, 1957, 9-13. RM845.V4, v. 32

Statistical data are given on the development of roentgenology and radiology in White Russia.

470. SOSOVA, V.F. Effect of antibiotics on the imflammatory process in irradiated animals. Meditsinskaya radiologiya, no. 1, 1959, 45-50. DNLM

At the acute period of radiation sickness even a single massive dose of antibiotics may prevent the development of bacteremia and necrotic-hemorrhagic changes in places of microbe introduction, in case of an infection on the background of previously administered streptomycin or penicillin. However, in such inflammatory foci live microbes may be present

for a long time. Numerous (for 5 days) intramuscular introduction of streptomycin almost completely destroys the microbes in inflammatory foci infected in 15 minutes following the first injection of the antibiotic. In intramuscular administration of streptomycin to irradiated and nonirradiated rabbits, the drop of the concentration of the antibiotic in the blood was in dependence to the dose introduced.

471. SOSOVA, V.F. Effect of antibiotics on inflammatory processes in irradiated animals. Meditsinskaya radiologiya, v. 4, no. 1, 1959, 45.
DNLM

472. SOSOVA, V.F. Effect of streptomycin and penicillin on the inflammatory process in irradiated animals. Meditsinskaya radiologiya, no. 4, 1959, 31-36.
DNLM

The author studied the importance of the mode of introduction, the number of administrations and the dose of the antibiotic (penicillin and streptomycin) in the treatment of infectious inflammation in irradiated rabbits (800 r). In the treatment of skin inflammatory foci, caused by the infection with B coli, intramuscular administration of streptomycin was ineffective. The introduction of the antibiotic into the focus of inflammation reduced the number of microbes, the effect depending upon the quantity of bacteria in the tissue of the focus and on the dose of the antibiotic. In a number of instances upon introduction of streptomycin into the focus there developed very rapidly (in 24 hours) resistant forms of bacteria.

473. SOSOVA, V.F. Dimedrol in combination with streptomycin and biomycin in the treatment of infectious inflammation. Meditsinskaya radiologiya, no. 5, 1959, 17-19.
DNLM

The paper presents studies on the action of dimedrol and the combination of dimedrol with antibiotics (streptomycin, biomycin) on the development of infectious inflammation in irradiated (800-1,100 r) and non-irradiated rabbits, infected intracutaneously with Bact. coli. Judging by the fact that in the foci of inflammation the number of microbes did not decrease, hemorrhages and necrosis occurred, and bacteremia developed in the infected irradiated animals-dimedrol did not exert a favorable effect on the development of infection. Dimedrol also did not intensify the action of antibiotics on the microbes in the foci of inflammation.

474. Soviet research on radiation sickness. Meditsinskaya radiologiya, v. 3, no. 2, 1958, 3-10, 49-52, 53-60, 72-85. DNLM

Contents: The problem of radiation reactions and radiation sickness, by G.A. Zedgenidze, I.S. Amosov, and L.F. Sinenko. The sensitivity of newborn rats to various doses of penetrating radiation, by V.V. Kholin. Changes in the blood in chronic radiation sickness, by M.S. Lapteva-Popova. The effect of intravenous administration of novocaine on the course of experimental radiation sickness, by S.P. Sizenko and V.V. Markovich. Certain data on the use of Urotropine in the treatment of radiation sickness, by M.P. Domshlak and L.B. Koznova. The problem of the "protective factor" of the hematopoietic tissues. (A review of the foreign literature) by Yu.M. Zaretskaya. Main subject headings are Biological sciences--radiobiology, radiation sickness--USSR. Translation: JPRS-1390-N.

475. Soviet civil defense posters. Eight Soviet civil defense posters published by the All-Union Voluntary Society for the Promotion of the Army, Air Force and Navy (DOSAAF), Moscow, 1957.

The posters fall into 3 categories: 1. Antiaircraft civil defense (Posters 1-4); 2. Bacteriological weapons (Posters 5-6) and 3. Decontamination of radioactive fall-out (Posters 7-8). These posters give information to the people of how to protect themselves in case of CBR warfare. Descriptions of where to go for shelter, how to decontaminate areas, markers, alerts, gas masks, blackouts, protection of food, fire fighting equipment, water supply, combat explosives against bacteriological warfare, etc. Translation: SIR-2782.

476. Soviet tourism as a part of civil defense. Soviet open sources, 1947-1957. Compiled in AID Report No. AF1116915.

"Tourism" is the participation by civilians in activities which are of primary importance in military life. It includes arduous cycling, skiing, and target shooting. These topics are discussed: (1) relation of Soviet tourism to civil defense; (2) scope and forms of Soviet tourism; (3) governmental and party control; (4) implementation and training; (5) relation of Soviet tourism to other sports. Main subject headings are Engineering--safety, civilian defense systems--USSR and recreation--USSR.

477. Soviet work on radiation hygiene. Gigiyena i sanitariya, v. 23, no. 10, 1958, 3-92. RA421.G5, v. 23

Covers atmospheric contamination, radioactivity of water and its effect on fish life, industrial and personnel problems in establishments working with radioactive substances, transportation of radioactive isotopes, use of radiation in the food industry, and decontamination. Main subject headings are Biological sciences--radiobiology, radiation injuries--countermeasures--and radiobiology--USSR. Translation: JPRS 1237-N.

478. Sovremennye sredstva porazheniya s vozdukha (Contemporary means of attack and contamination from the air) Moskva, izdatel'stvo DOSAAF, 1958-1959. [Eight Soviet posters on civilian defense].

Each poster gives the steps for the "Ready for PVO Grades" from 1 through 8. Material covered concerns warfare by means of atomic, bacteriological, and chemical weapons. Translations of the captions are available. The information covers means of individual and collective defense against CBR warfare from the types of injuries to those of veterinary work.

479. STAVITSKIY, R.V. On the reduction of radiation hazards in x-ray diagnosis. Meditsinskaya radiologiya, no. 12, 1959, 62-65. DNLM

The paper deals with problems of reduction of irradiation of the patients and personnel in the x-ray diagnosis rooms of medical institutions. The problem of reduction of radiation hazards is divided into two groups: 1) proper selection of a rational electric current supply characteristics of the tube, i.e. work on higher voltages of the order of 100-120 kv, this permitting to decrease theirradiation dose by 30-50%; 2) correct use of different devices (tubus, filter, etc.). When considering the problem of radiation hazard reduction in diagnostic rooms the author points to the expediency of dividing the room into two sections-the procedure and control sections.

480. STEPANOVA, M.M., and others. Problem of the metabolism of vitamin C and aromatic amino acids in radiation sickness. Voprosy meditsinskoy khimii, no. 4, 1958, 370-372. RS402.V8 1958

No serious disturbances in metabolism of the amino acids or marked changes in vitamin C levels were observed during radiation sickness in guinea pigs. Translation: JPRS L-692-N.

481. STRKL'TSOVA, V.N. The development of leukemia under the influence of ionizing radiation. Meditsinskaya radiologiya, no. 12, 1959, 67-79. DNLM

482. STUBBS, MARSHALL, CBR-A power for peace, Armed forces chemical journal, no. 3, 1959, 8-10.
UG447.A75 1959

The author is a Major General and the Chief Chemical Officer, US Army. Excerpts from the article: We have good reason to believe that Russia's heavy concentration on increased military capability includes the field of chemical and biological warfare. In May of last year NATO published a memorandum warning ... that the Soviet Union was ready for instant atomic warfare ... possibility of using germ warfare and gas.... Within the Soviet divisions is an organization devoted to the field of chemical warfare.... Statements by Soviet military leaders on the role of chemical and biological warfare ... are positive and are indicative of Soviet preparation to use ... all weapons including toxic ammunitions. Soviet microbiologists and military authorities have conducted BW tests at an isolated location over a long period of time.... Communists have conducted research and development leading to the large scale production and storage of disease producing and toxic agents .... Major General Yu.V. Drugov, Military Medical Service, Red Army, ... patriotic duty scientific work on poisons and their research.... DOSAAF, consisting of more than 300 million members ... extends instructions in practical defense against chemical and biological agents. ...Their (Soviet) leaders have stated openly that future wars will be characterized by various means of mass destruction, such as atomic, hydrogen, chemical and bacteriological weapons .... Soviets are showing a marked interest in the incapacitating agents ... these agents have the ability to upset the behavior pattern thus reducing a soldier's will to fight.

483. STUBBS, MARSHALL. General Stubbs New York speech, Armed forces chemical journal, no. 1, 1959, 8, 10, 12-13. UG447.A75 1959

In an address before the New York Chapter of A.F.C.A., General Stubbs, Chief Chemical Officer of the Army, stated that although we have heard a great deal about the missile and submarine threat, and technological advancer of the Soviet army, we have heard little about the magnitude of their CBR arsenal. We have heard enough, however, to know that the communists are very much alert to the potentialities of this form of warfare and give it a prominent place in their preparations. There is reference to a statement

by General Trudeau, Chief of Research and Development of the Army, that the defense against CBR agents is very difficult, but very important and it is felt that we should push our programm in view of indications of Russian intent to employ some or all of them in war. Continuation of the article describes our advances in research on CBR.

484. Suits for antiradiation. Sovetskaya aviatsiya, 31 Oct 1958, 4.

Short description of a suit protecting against radiation. Suit is a product of work done by doctors and engineers for many years. Name of this suit is LG-2, it consists of a soft helmet with a plexiglass window, and a suit without seams but connected by high-frequency electric welding. Pure air is supplied at the rate of 160-200 liters per minute. Special openings consist of plastic zippers and the special foot-wear and gloves (as the suit) are made of polymeric material. Radioactive dust can be removed by a regular shower. Summary: AF1187395.

485. **SUMAROKOV, G.V.** The dynamic radiation injury in calandra granaria under various irradiation conditions. Biofizika, no. 3, 1958, 374-376. QH505.A1B53 1958

The effects of ionizing radiation on adult insects were studied following exposure of the beetle, Calandra granaria, during the developing stage to various doses of cobalt-60 radiation under normal conditions and in air with varying amounts of oxygen. Death of the insects served as the indicator of radiation injury. Data are summarized from three repeated tests in which 25,000 insects were used.

486. **SUPRON, L.F.,** and others. Meditsinskoye obespecheniye naseleniya v usloviyakh primeneniya sredstv massovogo porazheniya (Medical protection of the population under conditions of mass destruction weapons). Minsk, Gos. izd-vo BSSR, 1959. 407 p. illus., biblio. RC91.S8

487. **SVERDLOV, A.T.** The role of the humoral factors in the body reactions to the action of ionizing radiation. Meditsinskaya radiologiya, no. 11, 1959, 19-24. DNLM

The role of humoral factors in the body reaction to the local irradiation has been experimentally studied. As demonstrated irradiation of a rabbit's ear is associated with characteristic blood changes only with preserved humoral connections of the irradiated field with the organism. Ear irradiation on conditions of its humoral isolation (but with preserved main nervous connections) does not provoke any significant changes

in the morphological blood composition. Intravenous injection of the perfusate obtained from the irradiated isolated ear to the intact animals provokes blood changes characteristic of radiation sickness. The tonic effect of the perfusate is removed by boiling and is not connected with the substances influencing the isolated frog's heart.

488. SYRNEV, V.P. Ground radiation reconnaissance. Vestnik vozdushnogo flota, no. 5, 1957, 52-62.
TL504.V45 1957

Description of field and individual radiation detection instruments which are considered the best anti-atomic defense in using ground radiation and dosimetric checking for the irradiation and contamination.

489. TARUSOV, B.N. Principles of biological action of radioactive radiation. Moskva, 1955. 139 p.
QH652.T3

Basic theories concerning the mechanisms of ionizing radiation are considered. The target theory is rejected because it does not take into account the indirect action of decomposition products of water during the initial phase. Damage to the molecules of the biosubstrate occurs during the incubation period; this is a general biological reaction in response to ionizing radiations. The spreading of this general reaction brings about the excitation phase, after which damage assumes a manifest character. Decrease of oxygen concentration in cells and tissues raises survival percentages. Certain compounds (e.g. cysteine, mercaptans) affect the primary process of radical formation. Some are antioxidants, but other prophylactic agents which are not antioxidants produce analogous action. All prophylactic agents are effective only during time of irradiation. Main subject headings are Biological sciences--radiobiology and radioactivity--physiological effects.

490. TAYLOR, MAXWELL, D. Improving our capabilities for limited war. Armed forces chemical journal, no. 2, 1959, 6-8, 39. UG447.A75 1959

General Taylor, Chief of Staff, United States Army, interprets a general war, as a direct armed conflict involving the United States and the Communist Bloc in which our national survival would be at stake. All types of weapons would be used or it could be depicted as an atomic war to the finish. He cited the limited war situations that have already occurred and states that the Soviet leaders are willing to take chances, as was proved before when they did not have our atomic strength. There will be an increase of tension and threats of nuclear devastation.

491. TEPLOV, S.I., and others. Affection of the myocardium in radiation sickness and local x-ray irradiation of the cardiac region. Meditsinskaya radiologiya, no. 3, 1959, 27-33. DNLM

ECG changes in radiation affection of the heart are identical in total irradiation of the body with sub-lethal and lethal doses, as well as in local irradiation of the region of the heart. They show a drop in the voltage of waves and changes of the terminal part of the ventricular complex- the S-T segment and wave T. The cardiac rhythm tends to accelerate. In radiation sickness these changes are seen in two periods; in the first two days following irradiation and at the peak of radiation sickness-on the 7-9th day.

492. TERMAN, A.V. A review on the book by Terman, "The Hazards of nuclear explosions to mankind". Meditsinskaya radiologiya, no. 12, 1959, 83. DNLM

493. THEIMER, J.E. Concepts of modern warfare Army, Navy, and Air Force. Armed forces chemical journal, no. 4, 1958, 16-17, 24-25. UG447.A75 1958

Excerpts from an address by Major General Theimer, assistant Deputy Chief of Staff for Military Operations for Programs and Budget, US Army. This modernized Soviet Army, the largest in the world, is capable of waging either an atomic or non-atomic war, general or limited, anywhere in the world. Soviet military aviation is modern ... capabilities to strike anywhere in the United States with nuclear weapons.

494. TIKHAYA, M.G. Chronic action of small quantities of radioactive zirconium (Zr^{95}) on the organism of animals. Meditsinskaya radiologiya, no. 5, 1959, 62-67. DNLM

The experiments were conducted on dogs. Zr^{95} (0.2 μC/kg body weight) was introduced to animals with food daily (except sundays) for 17 months. A number of dogs were under observation for 33 months, i.e. 16 months following cessation of Zirconium administration. Radioactive Zr^{95} was diluted in 0.25 H oxalic acid. Toxicity indices were as follows: the general state of the animals, weight dynamics and peripheral blood picture. The Zr^{95} excretion with urine and feces was determined periodically. No pronounced clinical manifestations of the effection were established. Zr^{95} is excreted periodically in small quantities. The disturbance of erythropoiesis is inconsiderable. Comparatively large changes were seen in leukopoiesis, first expressed by sharp fluctuations of the number of leukocytes and neutrophils, followed later by a progressive decrease. Considerable changes were noted in the

lymphocyte count. The impaired functions of leuko- and lymphopoiesis were not restored even in 16 months following the cessation of Zr^{95} administration.

495. TIKTINSKIY, O.L. Morphological changes in the peripheral white blood in whole-body x-ray irradiation coupled with injury of the kidney. Meditsinskaya radiologiya, no. 8, 1959, 81-82. DNLM

496. TIMAKOV, V.D., and others. Some aspects of bacteriophage application in radiobiological research. IN: Akademiya meditsinskikh nauk SSSR. Vestnik, v. 14, no. 8, 1959, 61-67. R95.A625, v. 14

Topics discussed in this paper include (1) Bacteriophage as a model for analysis of the mechanism of the primary effect of ionizing radiation, (2) Use of bacteriophage in analysis of secondary processes in radiation injury, (3) Use of bacteriophage for solving other adiobiological problems, e.g. oxygen effect, and relative radiation resistance of functions associated with proteins, (4) Bacteriophage as a model for the selection of new protective agents. Main subject headings are Biological science--radiobiology, radiobiology, and bacteriophages--effects of radiation. Translation: JPRS L-1948-D.

497. TITOV, I. In a complicated situation; training in anti-atomic defense. Sovetskaya aviatsiya, 3 Apr 1957, 2.

The author describes an exercise in anti-atomic defense performed on an unnamed Soviet airfield. Translation: AF1134130.

498. TKACHEVA, T.V. Prolonged studies of changes of the composition of the peripheral blood and bone marrow in animals following total single x-ray irradiation. Meditsinskaya radiologiya, no. 3, 1959, 14-21. DNLM

The article sets forth studies of changes of the composition of the peripheral blood and bone marrow in animals following total single x-ray irradiation.

499. TOKARSKAYA, Z.B. The change of tissue autolysis in radiation sickness. Meditsinskaya radiologiya, no. 3, 1959, 81-82. DNLM

Description is given of experiments run on rabbits and other animals; organs studied were spleen, liver, kidneys, and muscles. Main subject headings are Biological sciences--radiobiology, radiation sickness--pathology and tissues (biology)--effects of radiation. Translation: JPRS L-867-N.

500. TONKIKH, A.V., and others. Changes in the activity of the adrenal medulla in the action of ionizing radiation upon the body. Meditsinskaya radiologiya, no. 11, 1959, 25-28. DNLM

The author employed the presence of the second wave of the blood pressure rise, appearing late after delivering a pain stimulus, as an activity index of the adrenal medulla. This wave is cuased by adrenaline secreted by the adrenals. Following a single ionizing irradiation in the dose of 800 r a pain stimulus of the extremity causes a two-wave rise of the blood pressure only during the first 6 days after the irradiation; in 7-8 days, and later, only the first wave appears. The absence of the second wave of the blood pressure rise points to a decreased function of the medulla of adrenal glands, i.e. it does not secrete adrenaline. This may be one of the causes of hypotension in radiation sickness.

501. TOPCHIYEV, A.V. Prevention of the danger of atomic war; results on the third Pugwash conference of scientists. IN: Akademiya nauk SSSR. Vestnik, v. 28, no. 11, 1958, 10-16. AS262.A627, v. 28

Main subject headings are social sciences, radiological warfare--prevention.

502. TOPCHIYEV, A.V., and others. Radioisotopes application. A/Cong. 15/P/2308, 72 p. tabl. biblio.

This paper presented in popular form, gives the various applications of radioisotopes in science, industry, and agriculture but does not contain any description for the use of isotopes in medicine.

503. TOPOROVA, G.P., and others. Luminiscence of DNA isolated from tissues of irradiated animals. Meditsinskaya radiologiya, no. 3, 1959, 57-60. DNLM

X-ray irradiation of animals produces a change of the physico-chemical properties of DNA, manifested by an increase of the intensity of fluorescence of DNA preparations in the presence of fluorochromes. The rise of fluorescence, as well as the change of the content of nitrogen in the molecule, takes place soon after irradiation of the animals and fades away at the moment of the nitrogen and phosphorus content in DNA.

504. TOROPOVA, G.P. Glycogen content in the liver of rats in the first hours following irradiation. Meditsinskaya radiologiya, no. 5, 1959, 89-90.
DNLM

505. TOROPTSEV, I.V., and others. Pathological anatomy of the death of animals under the effect of betatron ray of 25 mev. Meditsinskaya radiologiya, no. 2, 1959, 50-55. DNLM

The authors studied the morphological characteristics of death under the effect of betatron ray in connection with certain features of its clinical picture. Experiments were performed on 20 adult guinea pigs. The irradiation was performed on Betatron Ray (25 mev) with the intensity of 30-35 r/min, focal distance -35 cm with the dose of 25,000 r. The measurement was performed by the ionization chamber with the volume of 20 cm^3 and the walls made of plexiglass of uniform thickness. Irradiation was carried out with the intervals of 15-20 minutes after each dose of 7,200 r. The death of the majority of animals took place during the last irradiation (after the dose of 21,600 r). The clinical picture of the affection was manifested by early and grave functional changes in the nervous system: short depression is quickly replaced by the increased excitation of the skeletal muscles, convulsions and finally, by disturbances of respiration. The spastic condition of the gastrointestinal tract of certain sphincters and disturbances of hemodynamics, develop at an early date. Anemia of cerebral vessels, in universal paretic dilatation of the vessels of other organs and necrobiotic changes of the cells are noted morphologically. The necrobiotic changes are most pronounced in the elements of the hemopoietic tissue, the vascular endothelium, hepatic parenchyma and the lining epithelium, hepatic parenchyma and the lining epithelium of the gastrointestinal tract. The leading role in the mechanism of death is played by the disturbance of the hemodynamics and, particularly, the anemization of the brain, which evidently, causes an early disturbance of the function of the central nervous system.

506. TRINCHER, K.S. The decline of irradiated erythrocyte resistance in an alkali medium and the dependence of the latent period of alkali haemolysis on the irradiation dose. Biofizika, v. 4, no. 1, 1959, 78-83.
QH505.A1B53, v. 4

The resistance of irradiated erythrocytes to the subsequent effect of an alkali medium is sharply diminished as compared to the resistance of the non-irradiated erythrocytes. Irradiated and non-irradiated erythrocytes resistance to the subsequent effect of an acid medium is about the same. The dependence of the latent period of alkaline haemolysis on the dose of blood irradiation is of a simple exponentially decreasing function character. It may be supposed that the surface layer of the erythrocyte contains a great number of radiosensitive spots, damaged according to the target theory and that this damage causes the diminution of the latent period of alkali haemolysis.

507. TROITSKIY, L.V. The influence of ionizing radiation on immunity. Voyenno-meditsinskiy zhurnal, no. 2, 1958, 53-61 RC970.V55 1958

The effects of radiation on the natural resistance of an organism to certain infectious diseases, largely as observed in laboratory experiments on animals, are discussed.

508. TROITSKIY, V.L. Application of ionizing radiation in the production of bacterial preparations. Meditsinskaya radiologiya, no. 5, 1957, 80. DNLM

Possibility of using radioactive irradiation in the production of bacterial preparations. Methods of the application of this process are listed.

509. TROP, I.E. Scientific conference at Irkutsk anti-plague institute. Zhurnal mikrobiologii, epidemmologii i immunobiologii, no. 10, 1959, 155. QR1.Z5 1959

The conference took place on 25-29 November 1958. The territory covered by the Institute extends from the Ural Mountains to the Pacific Ocean including Soviet held islands. Prof. I.V. Domodarskiy lectured on prospects of prophylactic measures for protection of plague in Siberia and the Soviet East. Zoological and parasitological research were the subject of the paper ready by N.V. Nekilepova. Other topics discussed included plague epidemics and types, entomology, bacterial infection, etc.

510. TRUSHINA, M.N. The efficacy of blood substitution with polyglucine in experimental treatment of radiation sickness. Meditsinskaya radiologiya, no. 7, 1959, 67-70. [illegible]

The author studied the therapeutic effect of two blood substitutions with polyglucine (10-11% of the total quantity of blood) on the first and third day following irradiation against the background of various therapeutic substances (antibiotics, antihemorrhagic and antihistaminic preparations, hemotransfusions). The experiments were staged on 21 dogs subjected to x-ray irradiation (600 r). The indices of effectiveness were the following: the survival of dogs, clinical symptomatology, changes of the peripheral blood and autopsy data. In a number of animals the author studied the coagulation time, the permeability and resistance of skin capillaries, as well as the general content of protein in the blood serum. As was established, the above variant of therapy considerably increased the survival of irradiated animals (of the 11 dogs under treatment 9 survived, of the 10 control dogs only 2 survived), alleviated the clinical course of acute radiation sickness and favourably influenced the laboratory indices of hemorrhagic diathesis (blood coagulation, permeability and resistance of skin capillaries). Additional experiments, staged on 10 dogs, with the exclusion of polyglucine transfusions from the complex of therapeutic measures, decreased by many times the therapeutic effect of treatment (of the 10 treated dogs only 3 survived, of the 7 control-only 2). Polyglucine transfusions considerably increase the efficacy of the complex treatment of acute radiation sickness.

511. TSANEV, A., and others. Protivoatomna zashtita (Atomic defense). Meditsina i Fizikultura State Publishing House, Sofiya, 1957.

This book is designed as a guide in training [Bulgarian] public instructors of DOSO in atomic defense. The popular presentation of the material permits a wide circle of readers. The first part presents the fundamentals of atomic weapons and their destructive features. The second part goes into the various phases of atomic defense; broken into two chapters entitled "Preliminary Measures" and "Clearing the Aftermath of an Atomic Attack". The book has 77 drawings and 17 photos. The author has drawn heavily on Soviet sources. Translation: AF1183042.

512. TSARAPKIN, S.R., and others. Action of Pu^{239} and $Sr^{89, 90}$ on the bone marrow of white rats. Meditsinskaya radiologiya, no. 6, 1959, 75-77. DNLM

In experiments staged on rats the authors studied the reaction of the bone marrow to intraperitoneal administration of 1.5 mC/gm of $Sr^{89, 90}$ and 0.0035 mC/gm of Pu^{239}. Analysis of the bone marrow on the 3rd, 8th, 16th, 32nd day following the introduction of the isotope shows a larger sensitivity of cells of the erythropoietic series in comparison with cells of the granulopoietic series, the presence of the initial hypergenerative phase, increase of the number of generating cells and pathological mitoses. The bone marrow reaction in affection with Plutonium, in difference to affection with strontium, is characterized by inhibition of the hypogenerative phase and lesion of reticuloendothelial and histiocytic cells.

513. TSARAPKIN, L.S. Restoration of ray damages of chromosomes, induced by various chemical agencies. IN: Akademiya nauk SSSR. Doklady, v. 128, no. 1, 1959, 190-193. AS262.S3663, v. 128

Specific effects of cysteine on the rate of restoration of chromosomes are analyzed and the mechanism of the process is described. Experiments are carried out with dried peas irradiated with 15,000 r of γ rays from Co^{60} and soaked for 4 to 6 hours in 0.01 M solutions of cysteine, sodium chloride, ethyl alcohol, and acetic acid, followed by soaking in water for 18 to 20 hours. The influence of various substances on the mitotic activity and the type and percentage of abnormal aphanase at various fixation points are tabulated.

514. TSAREVA, S.A. Comparative study of the effect of certain antibiotics on experimental tularemia infection. Zhurnal mikrobiologii, epidemiologii i immunobiologii, no. 6, 1959, 130. QR1.Z5 1959

1. Tularemia. 2. Antibiotics. Experiments were conducted of infecting mice with tularemia and testing the effect of antibiotics.

515. TSILYURYK, I.T. The absorption of various radioactive compounds on the fresh surface of experimental wounds. Novyy khirugicheskiy arkhiv, no. 4, 1959, 12-16. DNLM

Main subject is biological science--radiobiology, wounds--effects of radiation. Translation: JPRS L-1037-N.

516. TS'UI, SHAO-TUNG. New poison that can be used as insecticide. Chieh-fang chün hua-pao, 11 Jul 1958.

This article emphasizes the cooperation between the military and civilian. It specifically deals with a variety of poisons developed by the army chemists that has proved to be a good insecticide.

517. TSUKROVA, F.M. Insulin effect in irradiated animals. Meditsinskaya radiologiya, no. 10, 195 , 80-81.
DNLM

518. TU, PI. Achievements are naturally successful. Chieh-fang chun hua-pao, no. 11, 1 Jun 1959, 19.

Staff advisor, Tzu-wu Li of the anti chemical corps had previously a fourth form education. Li, Tzu-wu decided to better his education in chemistry. For three years he studied and during this time finished high school and he is now the equivalent of a sophomore in college. He has specialized in general chemistry, chemical analysis, and the study of poisons. Li, Tzu-wu's main interest is in the development of new model gas masks. Photos show, Li, Tzu-wu in an anti-radiation suit analyzing poisons and working on a new model gas mask.

519. TUL'TSEVA, N.M., and others. Increased radioresistance of bombyx mori l. polyploids and the general theory of the biological action of ionizing radiations. Biofizika, v. 3, no. 2, 1958, 183-189.
QH505.A1B53, v. 3

The radioresistance of silkworm embryos in the stages from diapause to middle spring development increases with the degree of polyploidy, other things being equal. There is a marked rise in resistance between diploid and triploid, and a lesser one between triploid and tetraploid. The data support the ideas as to the essence of the biological effects of ionizing radiations. They show that the main causes of such effects as radiation damage to embryos of multicellular organisms are genotype changes in the cell nucleus.

520. TUMANYAN, M.A., and others. Effect of massive doses of γ-radiation on the immunogenic properties of bacteria of the intestinal group. Zhurnal mikrobiologii, epidemiologii i immunobiologii, v. 29, no. 4, 1958, 3-10. QR1.Z5, v. 29

Bacteria of the intestinal group were found to be killed by radiation doses of 400,000 to 600,000 r. When spore forms of bacteria were contained in the material, sterilization was achieved by doses of 1.5 to 2 mr. Applications of radiosterilization are discussed for the preparation of bacterial-cell vaccines, bacterial

antigen complexes, chemical vaccines, and the preparation of vaccines made from bacteria killed by radiation. A study was made of the quality, antigenic and immunogenic properties liability to retain Vi antigen, and toxicity of baccines and antigenic complexes prepared from irradiated dysentery and typhoid bacteria. It was found that the radio-antigens were less toxic than antigens prepared from formalinized bacteria or from bacteria which had not been killed before the preparation of the antigen. When antigen previously prepared from formalinized bacteria was subjected to radiation, it either did not differ in toxic properties from the unirradiated antigen or was more toxic.

521. TUMANYAN, M.A., and others. Influence of introduction of bone marrow suspension on the immunity of irradiated animals. Meditsinskaya radiologiya, no. 7, 1959, 52-59. DNLM

Experimental investigations show that daily protracted (20-25 days) treatment with bone marrow following the action of ionizing radiation stimulates the hematopoiesis. Prolonged daily administration of bone marrow of non-irradiated rats (80-100 million cells) into the irradiated rats increases the number of leukocytes, erythrocytes, thrombocytes and reticulocytes in comparison with the control. The introduction of bone marrow raises the sharply lowered natural resistance of rats to typhoid bacteria due to the influence of ionizing radiation. Bone marrow administration to rats irradiated with LD100 of gamma-rays increases their survival rate up to 30%. Although the treatment of irradiated rats with antibiotics and bone marrow does not increase their survival rate as compared with the irradiated rats treated only with antibiotics, however, the above treatment produces the most favorable effect of protection of the irradiated organism from infectious complications of radiation sickness.

522. TUROVSKIY, V.S. Influence of local x-ray irradiation on the content of acid-insoluble phosphorus fractions in the bone marrow of rabbits and the rate of radiophosphorus inclusion. Meditsinskaya radiologiya, no. 10, 1959, 17-21. DNLM

The author studied the content of acid-insoluble phosphorus fractions and the rate of radiophosphorus inclusion in the bone marrow of rabbits. Under analysis was the bone marrow of rabbits lower extremeties; one of the latter was subjected to irradiation in the dose of 500 r. The results obtained were compared with similar indices from healthy non-irradiated rabbits. In the bone marrow subjected to the direct

action of irradiation the content of acid-insoluble phosphorus fractions and the rate of radio-phosphorus inclusion at the beginning sharply dropped, but towards the end of the observation (32nd day) these indices reverted to normal or were somewhat higher. The bone marrow subjected to a reflected action of irradiation was characterized at the end of the observation by a considerable rise in the content of acid-insoluble phosphorus fractions, especially the fraction of nucleic acids.

523. TUZHILKOVA, T.N. On the early and late changes in the skeletal musculature of rats subjected to the local action of x-ray irradiation. Meditsinskaya radiologiya, no. 10, 1959, 34-37. DNLM

The paper presents studies of the local action of x-rays (3,000 r) on the muscular tissue. The anterior tibial muscle of white rats was the object of investigation. The radiation injury of the muscle can be detected soon after the irradiation and is characterized by a stable inhibition of the regeneration capacity of the muscular tissue. A marked tendency to regeneration appears in the affected muscular tissue only in one year following the irradiation. At this time there could be observed in the muscle an acute atrophy, which develops gradually and becomes distinct from the 6th and 8th month after the irradiation.

524. TV anti-atomic defense lesson in the USSR. Wojskowy przeglad lotniczy, (Warszawa) no. 7, 1957, 87-96. UG630.W57 1957

On 27 May 1957, Moscow TV showed a film on civil defense actions in case of an atomic attack. Original source could not be located for more information.

525. U.S. Army Chemical Corps Intelligence Agency. Soviet civil defense against CBR attack. Armed forces chemical journal, no. 3, 1959, 16-19, 24. UG447.A75 1959

Excerpts from the article: Soviet Union's civil defense system has grown and kept active in the postwar period. Nor have the Soviet's relaxed their vigilance against possible CBR attacks. ...a network of aircraft warning posts stretches across the Soviet Union. These posts, from which watchers scan the skies day and night are known as VNOS (Air Observation and Warning Stations) ... [Active civil defense is provided by the PVO; passive civil defense is under the MPVO]. Special groups of Local Air Defense Squads (Komandy) are equipped with dosimeters and inspect damaged areas after the attack to determine the degree of CBR contamination and to

mark off contaminated areas. Army Colonel General Pavel Belov is director of the DOSAAF. The following is a summary of the article. All civilians from the age of 16 are eligible to wear the "Ready for PVKhO" badge. This is a badge of the anti-chemical defense group and to be awarded this badge, one must receive 20 hours of CBR classroom instruction and engage in outside training. Exercises are mentioned which show what a vigorous approach the Soviets take for civil defense. The DOSAAF has formed Atomic Protection Circles (PAZ), of 20 to 25 members, who receive training two hours weekly. Protective masks are sold by DOSAAF stores at a cost of $14. Protective equipment is kept in office buildings, factories, tractor stations, and key installations where primary MPVO units are organized. Soviet government officials are constantly repeating threats of CBR warfare by "warmongers". Awards, badges, citations interest the people in active joint civil defense activities. Scholarships and promotions are other means to make the Soviets "good loyal citizens" for the protection of their country. The article ends with the note that civil defense to be effective must have mass participation and the Soviets may well have all citizens ready for CBR warfare. Photos show a Soviet civil defense badge, posters for anti-bacteriological defense of the population.

526. U.S. Congress. House. Committee on government operations. Civil defense in Western Europe and the Soviet Union. Washington, 1959. UA929.E8U6

Part 3. Civil defense in the Soviet union. p. 39-108 Soviet civil defense doctrine and its development, organization of Soviet civil defense. Protection against bombing civil defense operations. Availability of equipment and facilities. Training of the population. Training of civil defense personnel.

527. U.S. Library of Congress. General Reference and Bibliography Division. Bacteriological warfare a list of references in Soviet publications, 1929 to February 1952, comp., by Boris I. Gorokhoff. Washington, 1952. 11 p.

Contains no information on Soviet work on bacteriological warfare. The references given are of a Soviet propaganda campaign accusing other countries of using bacteriological weapons.

528. Utasitas legoltalmi ovohelyek letesitesere (Instructions for the establishment of civil defense air raid shelters). Budapest, 1951, p. 1-151.

The effects of poison gases cannot penetrate a well-built shelter to any extent that it would be harmful for those inside the shelter. Information gives complete construction details for shelter which can withstand about any type of bomb. Gives detailed structural engineering plans. Discusses the possibility of a gas war but belief is expressed that it is unlikely that there would be use of bacterial contamination as a strategic force. Translation: JPRS L-284-D.

529. UTEKHIN, E.V. Dosimetry in irradiation of the human head by gamma rays. Vestnik rentgenologii i radiologii, v. 33, no. 3, May-June 1958, 48-52.
RM845.V4, v. 33

Two methods were employed in irradiation of the hypophyseal area: external irradiation and irradiation by administration of Co^{60} preparations into the nasopharynx. Dosimetry of gamma-irradiation. The study of the doses in internal irradiation was carried out on a phantom human head on the head of a cadaver. The dose which was received by the hypophysis in external irradiation from the gamma apparatus was compared with that received by the patient from the radioactive preparations administered into the nasopharynx. The first method was found to be better than the second one. In the first method the hypophyseal area receives only 2% of the dose received by the soft tissues surrounding the radioactive preparation, while in the second method 40% of the dose on the surface of the head reaches the hypophysis, the skin focal distance being 25 cm.

530. V Pugwash Conference. IN: Akademiya nauk SSSR. Vestnik, no. 12, 1959, 37-41. AS262.A627 1959

Declaration of 26 scientists at an International Conference held in Canada, 24-29, August 1959, concerning problems of any possible biological and chemical warfare. Members of the Conference agreed that the best approach for international regulation of this potential threat would be to have a general agreement among all countries banning biological and chemical warfare weapons. They also agreed that research of countries of these fields should be open to everyone and not be classified secret. Specific field of research noted were microbiology, toxiology, pharmacology, and biochemistry.

531. VASADZE, G.SH., and others. The change of sensitivity to visceral injury of animals who had sustained radiation sickness. Meditsinskaya radiologiya, no. 10, 1959, 59-66. DNLM

The paper deals with the results of experiments on rabbits who 8-9 months following the irradiation and subsidence of external signs of radiation sickness, were inflicted a dosed mechanical injury of the intestine until the development of the torpid state of shock. The rabbits with radiation sickness in their history suffered from the trauma to a lesser degree than those who had not sustained the sickness. In order to induce a torpid stage of traumatic shock in the irradiated animals it was necessary to carry out a lesser number of eviscerations.

532. VASIL'EV, G.A. Acclimatization to hypoxia combined with the introduction of cystamine and cysteamine as a method of radiation sickness prophylaxis. Meditsinskaya radiologiya, no. 1, 1959, 41-44. DNLM

In experiments on white mice it was shown that the action of protective substances may be influenced by the functional state of the protected body. Mice acclimatized to hypoxia were more resistant to irradiation than the nonacclimatized ones. Cysteamine and cystamine introduced to acclimatized animals prior to irradiation enhanced the protective effect. This increase of the protective effect was not more than the summation of the action of both factors. The protective action of cystamine and cysteamine apparently is not connected with the utilization of protective mechanisms of the body.

533. VASIL'EV, G.A. Increased resistance of animals to x-ray irradiation following a period of acclimatization to hypoxia in the presence of a normal barometric pressure. Byulleten' eksperimental'noy biologii i meditsiny, v. 45, Feb 1958, 175-178. R91.B56, v. 45

It was established as a result of experiment that the endurance of white mice to irradiation by x-rays is increased under the effect of acclimatization to hypoxia without decrease of barometric pressure. The activity of catalase in the blood and organs of acclimatized animals is increased.

534. VASIL'EVSKAYA, V.V. The reactivity of blood vessels in affection of the organism with polnium. Meditsinskaya radiologiya, no. 8, 1959, 66-71.
DNLM

In experiments staged on rats the author studied the reactivity of peripheral vessels in affection of the organism with polonium. The reaction of central vessels of the ear was assessed thermometrically, the reaction of capillaries and small vessels-visually. The following irritants (mainly vasodilating were employed: local application of heat or cold, mechanical irritation, general warming of the body, intraperitoneal introduction of acetylchlorine. It was shown that in polonium-affected rats the reaction of vessels of the ear to the vasodilating action is lower; in a number of cases it is absent or perversed. The changes are more pronounced after the 10th day. At this period the vessels of the ear are prevalently in a constricted state. The prevalence of the tone of vasoconstrictors, regulating the lumen of peripheral vessels, disturbs the blood supply of superficial tissues in polonium-affected animals.

535. VATSEK, A. Disturbances of basal metabolism adaptational changes in rats subjected to x-ray irradiation. Meditsinskaya radiologiya, no. 6, 1959, 27-32.
DNLM

In experiments on white rats the author studied the consumption of oxygen, the expiration of carbon dioxide and the R.Q. change during the course of a 10-minute irradiation. The dose power was-5, 10, 20, 50, and 100 r/min. An elevated oxygen consumption and a drop of the R.Q. was observed in all the irradiated animals. Two types of reactions were distinguished: animals of the first type react by oxygen consumption increase depending upon the irradiation dose, in animals of the second type the oxygen consumption drops. In control animals a oxygen consumption is observed simultaneously with the R.Q. ratio increase. The results of the experiments are being discussed.

536. VAYNBERG, M.SH. Development of dosimetry in the USSR. Vestnik rentgenologii radiologii, v. 32, no. 5, 1957, 35-40. RM845.V4, v. 32

A brief survey of the development of dosimetry in the USSR, submitted from the viewpoint of meeting the necessities of medical roentgenology, radiology, and hygiene is given. A list and brief characteristics of the more common native dosimetric apparatus, as well as the shortcomings of the modern state of dosimetry in the USSR and perspectives for its further development, are presented.

537. Vesti iz Sovetske Unije. Predmet: Sovetska Ratna Industrija. Podaci o Sovetskim Bakteriloskim kombinatima, fabrikama i institutima, i spisak instith (News from the Soviet Union. Subject: Soviet War Industry. Data on Soviet bacteriological kimbinats, plants, and institutes, and index of these. AID report AF 1671, November 1954, translation from report 239-50, I.D. No. 691520, dated 24 Jul 1950.

The original source for the information of this verbatim translation was not avialable but the report lists names of each chemical kombinant with pertinent information for each one, location, names of personnel, production, manpower, etc. The preface states that the Soviets have employed in their war industry a great number of German engineers and chemists and have constructed many new modern chemical kombinants and plants for the exclusive production of bacteriological warfare agents in the period between 1947-1948. The informant indicates in this report all the most important kombinants, plants and institutes involved in the production of BW agents. The institutions cited work day and night without interruption, especially the large kombinants. These kombinants and plants employ Soviet and German engineers and chemists. The informat knows that all institutions described in this report exist and are in operation. A list of the separate kombinats are given indicating location and when possible, the principle product and other available information. There are 64 names of plants and institutes and almost all have been described with the above mentioned information. There is a strong indication that military personnel are in charge of most of the plants and institutions and most have military mail office numbers.

538. VIKHERT, T.M., and others. Experimental study of reactive changes in the brain following intracerebral introduction of radioactive colloid gold A^{198}. Meditsinskaya radiologiya, no. 9, 1959, 56-63.
DNLM

The experiments were staged on dogs (17 experimental and 3 control). One ml of A^{198} with the activity of 6.6 mC was introduced intracerebrally into the right frontal lobe. The dogs were sacrificed on the 3rd, 6th, 9th, 12th and 18th day following the administration. The authors performed autographic and histological investigation of the total slices of the brain. Confrontation of the microscopic investigation with the dosimetric characteristics of absorbed energy from the radioactive gold introduced into the brain disclosed a close interrelation between the dose of absorbed energy and the development of pathomorphological changes, which were manifested by destructive-necrotic processes, permeability disturbance of the walls of cerebral vessels and degenerative processes.

539. VIKTURINA, V.P., and others. On conditions of work of the personnel of x-ray and radiological rooms. Vestnik rentgenologii i radiologii, v. 32, no. 6, 1957, 82-87. RM845.V4, v. 32

An analysis is made of the permissible doses and protective measures for medical personnel working in radiology.

540. VLADIMIROVA, N.A. Influence of ultra-high-frequency electric field on the course of experimental radiation sickness in animals. Meditsinskaya radiologiya, no. 7, 1959, 14-20. DNLM

Studies of the influence of ultra-high-frequency electric field on the processes of hematopoiesis, as well as on the course of radiation sickness. Seventy rabbits were under study. Radiation sickness was induced by total x-ray irradiation (650 r) or by the introduction of radiophosphorus (1 mC/kg). The results of the investigations show that the action of ultra-high-frequency electric field on the region of the liver, spleen, stomach, and other adjacent organs produces changes in the peripheral blood and bone marrow of rabbits affected with radiation sickness. Leukopoiesis and thrombopoiesis were the most affected in rabbits subjected to x-ray irradiation, while reticulocytes-in those who were given radiophosphorus.

541. VLODAVETS, V.V. The effect of high-frequency radio waves on the intestinal Bacillus. Referativnyy zhurnal. Biologiya, no. 23, 1959, 72, abst. 100395. QH7.A5433 1959

This is an abstract of the original by P.I. Schastnaya in Tr. Khar'kovsk Med. In-ta, no. 46, 1958, 359-363. The bactericidal effect of centimeter and milimeter waves produced by high-frequency continuous -wave and pulse generators is well expressed with respect to B. coli at a bacterial concentration of 1,000 and 100,000 per ml. The author explains the bactericidal and bacteriostatic action of radio waves by the thermoselective effect of the high-frequency field, which leads to an increase in the temperature inside the bacteria. A bactericidal effect is not observed when the temperature of the medium is lower than optimum, so that as a result of the transfer of heat into the surrounding medium, the inside of the bacterial cells does not reach a temperature which is disastrous for them.

542. Vojna biblioteka -- Nasi pisci (Military library -- Our authors). Belgrade, 1958. 5-182.

Contents: The use of biological agents for war purposes, by D. Dragic. The use of biological agents in previous wars, by A. Miljkovic. Varieties of biological agents and their properties, by A. Miljkovic. Biological agents--causative agents of diseases in man, by A. Miljkovic. Conditions that influence the selection of biological agents for war purposes, by D. Dragic. Epidemics and artificial means of spreading them, by A. Miljkovic. Methods of dispersing biological agents, by V. Gajic. Factors that influence the application of biological agents, by R. Boskovic. Protection from biological attack, by A. Mikjkovic. Personal and collective protection from an attack by biological agents, by R. Boskovic. Epizooty and its artificial creation, by C. Sebetic. Biological agents -- causative agents of diseases in animals, by C. Sebetic. Individual and collective protection of animals, by C. Sebetic. Biological agents -- causative agents of diseases in plants, by M.M. Perisic. The most important pests that attack cultivated plants, by L. Budimir. Control of plant diseases, by M.M. Perisic. Control of plant pests, by B. Ilic. Survey of basic characteristics of contagious diseases in human beings, by R. Boskovic. Basic characteristics of animals contagious diseases.(for rest of abstract see TT, v. 1, p. 104). Main subject headings are Engineering-chemical and biological warfare agents. Translation: JPRS-1118-N entitled, "Biological agents in war."

543. VOLOKHOVA, N.A. Temperature disorders in dogs in massive irradiation. Meditsinskaya radiologiya, no. 6, 1959, 22-27. DNLM

Experiments staged on dogs revealed that irradiation (15,000-30,000 r) provokes temperature changes in the organism throughout the course of acute radiation sickness development. Irradiation in the above doses produces a difference in the temperature changes of the irradiated organism, and preserves the capacity of active heat emission regulation in elevated temperature of the external environment.

544. VOROBYEV, V.N., and others. Action of ionizing radiation on preserved blood and plasma. Meditsinskaya radiologiya, no. 6, 1959, 65-72. DNLM

The injurious effect of ionizing radiation on stored blood is manifested by a drop of the minimal osmotic resistance of erythrocytes, acceleration of their spherulation and hemolysis, i.e. changes characterizing preserved blood of prolonged storage life. The degree

of the delerterious action depends upon the irradiation dosage and the individual properties of the blood. Noticeable changes (hemolysis, spherulation) in the freshly stored blood occur, as a rule, on the 7th day following the irradiation. The results of biochemical investigations of the irradiated preserved blood show a more rapid drop of the intensity of exchange processes. The irradiation dose of 50,000 r does not noticeably change the protein system of native and dry plasma. The transfusion of preserved blood, irradiated with a dose of 10,000 r in the first 5 days of storage life, does not cause any material clinical or hematological changes in the animals. The results of the studies give ground for the conclusion that preserved blood, subjected to gamma-radiation, is quite suitable for transfusions, under the condition that there are no signs of damage. The latter could be determined by the routine tests, characterizing the quality of the stored blood, in particular-the absence of hemolysis.

545. VOROBYEV, V.N. An attempt to produce a relapse of radiation sickness. Vestnik rentgenologii i radiologii, v. 32, no. 3, 1957, 3-5. RM845.V4, v. 32

An attempt was made to produce by means of a second trauma a relapse in guinea pigs which had just recovered from acute radiation sickness. Acute radiation sickness of the 2nd or 3rd degree was produced in 36 animals by a single x-ray irradiation. It was accompanied by a reduction in the number of leucocytes to 200 to 400 per 1 mm^3 and a reduction in weight of 15 to 20 percent. In 9 to 14 days, 50% of the animals perished. On the 40th day after the irradiation, after they had clinically recovered (the amount of leucocytes was up to normal and their general condition was good), a closed fracture of the femur (the second trauma) was produced in the 18 surviving guinea pigs without anesthesia or immobilization. A careful observation of the animals was conducted after the traumas were inflicted. During ten days no changes in blood or general conditions were observed. These animals endured the traumas in the same manner as five nonirradiated control guinea pigs with the same traumas.

546. VOROBYEV, YE.I., and others. Problems of medical radiology at the VII All-Union Congress of roentgenologists and radiologists (Saratov, October, 1958). Meditsinskaya radiologiya, no. 1, 1959, 91-96. DNLM

547. VORONOY, YU.YU., and others. Study of the electric properties of blood by the hydration method in radiation affection. Meditsinskaya radiologiya, no. 8, 1959, 28-32. DNLM

Character of changes of dielectric properties of blood in dogs subjected to x-ray irradiation with doses ranging from 50 to 1,000 r. The experiments conducted demonstrate that irradiation of the animals with x-rays provokes changes of the dielectric properties of blood manifested by an increase of dielectric permeability. The nature of the latter depends upon the dose of irradiation and on the development of the pathological process. The change of the dielectric permeability of the blood is noted in the first hour following irradiation with a dose of 500-1,000 r. In irradiation with a dose of 50 r the dielectric permeability changes of the blood are marked to a considerably lesser degree and appear only in one week after the irradiation.

548. Voyenno-meditsinskiy zhurnal (Military medical journal). no. 6, 1958. RC970.V55 1958

Contents: Certain current problems of military field therapy, by A.T. Novikov. Treatment of pulmonary complications occurring in radiation sickness, by V.V. Sukharev. Radium applications, indications and methods of using them, by G.M. Tsygankov and I.A. Kuz'menko. Neurological disorders in the early stage of endarteritis obliterans and their dynamics under the influence of therapy at Pyatigorsk, by L.P. Smol'chenko. Intratracheal administration of penicillin in pulmonary suppurations, by A.Ya. Shuster and A.Ya. Verbnyakova. Primary suture of gunshot wound of the lung, by A.M. Dolgopolova. Concerning extensive pneumonotomy (peripheral resection) in solitary lung abscesses, by N.S. Timofeyev and V.M. Savelov. Pulmonary-resection in tuberculosis, by G.F. Bogach. On post-traumatic and post-operative atelectasis, by N.A. Degtyarev. Certain problems in the method of intratracheal anesthesia and potentiated analgesia, by A.A. Volkioy. The de-salting of individual supplies of salt water in a flask, by Ye.V. Shtannikov. A healthy life, by K.S. Petrovskiy. Certain results of the prophylaxis of influenza among the troops of the Soviet Army in 1957, by V.T. Mikhaylovskiy and V.I. Agafonov. On the problem of improving field medical equipment, by V.A. Sidak. Protection of medical-sanitation inventory from the action of atomic weapons, by A.B. Mosin. An apparatus for washing the wounded, by N.A. Starostin (for rest of abstract see TT, v. 1, p. 243). Main subject headings are Biological sciences--medical specialties and military medicine--USSR. Translation: JPRS 866-N.

549. Voyenno-meditsinskiy zhurnal (Medical military journal). no. 8. 1958. RC970.V55 1958

On the problem of the complications and changes in the internal organs from thermal burns, by I.A. Krivorotov, A.S. Stepanov, and K.S. Ivanov. Effectiveness of the use of convalescent blood plasma in the treatment of burn sickness in the stage of toxemia, by K.K. Gol'dgammer, P.I. Burenin and B.L. Razgovorov. The local course of third degree burns in radiation sickness, by V.M. Burmistrov and V.G. Slinko. On the problem of organization of treatment of the burned, by V.I. Markov and N.N. Fomin. The significance of the hematopoietic function, the properdine system, and of the thrombocytic factors in the resistance of the body to radiation, by M.O. Rauschenbach. Relationship of the reaction of the hematopoietic organs to the dose of x-rays, by V.K. Polenko and P.V. Simonov. The blood prothrombin in the treatment of polycythemias and leukemias with radioactive phosphorus and x-rays, by A.F. Murchakova. The influence of streptomycin and BCG vaccination on the course of tuberculosis in guinea pigs affected by radiation sickness, by I.B. Beylin and L.S. Kreynin. On the methods of antituberculosis vaccination, by Ye.B. Meva, A.V. Gorbunov, N.P. Timoshenko and V.I. Gel'fgat. Experience in the work of antituberculosis vaccination, by Ya.A. Gabay. Characteristics of heat exchange in naval personnel in the Arctic, by N.I. Bobrov. Treatment of carbon monoxide intoxications with oxygen under increased pressure, by K.M. Rapoport. Sources of error in performing the sedimentation rate (for rest of abstract see TT, v. 1, p. 167). Main subject headings are Biological sciences--Pathology and Military medicine--USSR. Translation: JPRS 1030-N.

550. Voyenno meditsinskiy zhurnal (Military medical journal). no. 9, 1958. RC970.V55 1958

Contents: Certain problems of the interaction of the military medical service and the civilian public health institutions, by S.G. Silvers. Analysis of injuries and preventive measures, by A.P. Zotov and S.V. Shumova. The prevention of injuries in the garrison, by V.K. Kuz'minov, V.M. Borshtenbinder, and L.L. Rodnyanskiy. The mechanism of parachute injuries of the thigh, by L.N. Aryayev. The problem of therapy of wounds, by N.T. Katerinich. Primary plastic operations of defects of the dura mater and the bones of the skull, by A.R. Balabanov. The utilization of the methods of optical chronaximetry in cerebral

concussions, by Ya.M. Yanovskiy. Characteristics of surgical treatment of gunshot sounds of the hip joint, by A.P. Gukov. Serum therapy of gas gangrene produced by B. Perfringens, by O.A. Kirilenko. Therapy of tetanus with preparations of curare-like action, by K.T. Proshunin. Changes of the skin in those working with sources of ionizing radiation, by V.I. Samtsov. Organization of anti-epidemic care of the troops in the presence of occurrence of diseases of virus etiology, by V.Ye. Korostelev and I.I. Rogozin. Improved method of haptocholic flocculation with the use of membrane ultrafilters, by A.V. Orlov. Method of selecting disinfectants for decontamination under conditions of negative temperatures, by M.A. Zolochevskiy. Study of the etiological characteristics of dysentery, by V.M. Shul'zhenko, Z.K. Enkler, Yu.T. Kuz'mina, and R.F. Kogan. (for rest of abstract see TT, v. 1, p. 209). Main subject headings are Biological science--pathology, military medicine--USSR, and military medicine--periodicals. Translation: JPRS 1108-N.

551. VOZNESENSKIY, S.A., and others. Decontamination of low saline and low active effluents of radiochemical industries. IN: International civil defense. Bulletin of the international civil defense organization, Geneva, Apr., no. 46, 1959, 7.

A/Conf.15/P/2024, 11 p. 2 fig., 5 tabl., bibli. Extensive application of radioactive isotopes in the national economy has resulted in the appearance of effluents of various institutions and plants, the present document studies the problem of purification and concentration of isotopes in a minimum volume and describes some of the methods suggested for the decontamination of radioactive effluents.

552. Vsesoyuzniya konferentsiya meditsinskoy radiologii. Eksperimental'naya meditsinskaya radiologiya. Trudy (Works of the All-Union Conference on Medical Radiology. Experimental medical radiology). Moskva Medgiz, 1957. RC93.V8 1957

Contents: Biochemical changes in the organism on exposure to ionizing radiation by A.M. Kuzin. Primary physico-chemical processes in radiation injury by B.N. Tarusov. Changes occurring within different parts of the central nervous system after exposure to x-rays by M.N. Livanov. Electrophysiological study of changes occurring in conditioned-reflex activity of rabbits after total and partial exposure to x-rays by Z.A. Yanson. Concerning some changes in receptor-systems under the influence of x-rays by N.S. Delitsyna. Alteration of spinal cord reflexes as a result of exposure of x-rays

according to the data of electrophysiological investigations by Z.M. Gvozdikova. Effect of gamma-radiations of radioactive cobalt on conditioned and unconditioned reflexes by J.A. Piontkovskiy, V.Ye. Miklashevskiy, and F.Z. Meyerson. Conditioned-reflex activity of dogs on intravenous administration of radioactive cobalt by P.I. Lomonos. The role of the nervous apparatus of the spleen in the process of restoration of the number of leukocytes of the peripheral blood during acute radiation sickness by T.K. Dzharak'yan. The effect of extraordinary stimulations of the nervous system on animals recovered from radiation sickness by Ye.N. Antipenko, K.M. Mgebrov, and N.P. Sinyakina. The question concerning the adaptation reactions of the organism during the action of ionizing radiation by Yu.K. Kudritskiy. The effect of small doses of x-rays on the morphology of the central nervous system of animals by M.M. Aleksandrovskaya. Morphological changes in peripheral nervous system on exposure of the organism to the action of ionizing radiation by T.N. Oleynikova. Concerning the question of the "Direct" action of x-rays on animal organism by S.Ye. Manoylov. Specific features of the action of fast neutrons on the organism of animals by V.V. Sokolov. Age-sensitivity of animals to total x-ray irradiation by L.A. Shparo, T.V. Fokina, and T.D. Merimova. Some data concerning the mechanism of damage to embroyos on irradiation of gravid animals with x-rays by N.A. Kalinina. Heart and skeletal muscles during radiation sickness by V.B. Zayrat'yants. The action of radioactive radiations on the functional state of retina by G.G. Demirchoglyan, G.T. Adunts, and Ts. Avakyan. Investigation conducted during the period of life of the early changes induced in the organism by ionizing radiation by G.M. Frank. Change in the metabolism of nucleic acids during radiation sickness by Ye.A. Dikovenko. Electrophoretic study of the dynamics of inclusion of methionine (S^{35}) in protein fractions of the blood serum of rabbits on exposure to massive doses of beta-radiation by Ye.P. Smolichev. Nitrogen metabolism during experimental radiation sickness in rats by T.A. Fedorova. The nitrogen metabolism during acute experimental radiation sickness in dogs by I.V. Fedorov. Carbohydrate metabolism in animals injured by polonium by A.Ya. Shulyatikova. The muscle catalase activity in rats afflicted with radiation sickness by V.I. Gorodyskiy and I.V. Veselaya. Concerning the early changes in blood serum on total exposure to x-rays which are revealed by the spectrographic method by B.M. Grayevskaya and B.A. Orlov. Changes in some indices of protein metabolism on chronic and acute action of ionizing radiation by O.V. Fastyuchenko and B.M. Varshavskiy. Synthesis and breakdown of blood

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the organism, their penetration from mother to fetus and excretion in maternal milk by M.I. Usanova. Inclusion of S^{35} -methionine in the proteins of muscles and skin of rabbits as a result of application of tourniquet and under some other conditions by I.Ye. Malakhov. The use of radioactive phosphorus and carbon in the study of the effect of vitamin C on transformations of nucleic acids within the cells of animal organism by B.I. Gol'dshteyn, V.V. Gerasimova, and L.G. Kondrat'yeva. Metabolism of erythrocytes on the action thereon of silicates and amino acids by V.A. Shcherbatskaya. Distribution of blood during traumatic shock by T.M. Mel'nikov. The use of radioactive tracers in the study of absorption and distribution of vitamin B_1 by Yu.I. Kolesnichenko. Utilization of the method of tagged atoms in the study of trophic disturbances of mucous coat of the stomach by I.S. Zavodskaya. Oxidation of hydrogen sulfide in the organism by A.I. Gunina. The use of isotopes in the study of specific features of metabolism of malignant neoplasms by N.V. Yel'tsina. The participation of some components of the cell in the synthesis of protein in tumors and in normal organs according to data on inclusion of tagged amino acids by I.B. Zbarskiy and K.A. Perevoshchikova. Rate of renovation of proteins of brain and liver in convulsive state by V.I. Rozengart and M.N. Maslova. The use of tagged atoms in the study of barrier functions of the organism by N.N. Zayko, N.I. Korhova, T.M. Tupikova, N.F. Shapashnikova, S.M. Mints, and I.P. Popov. Study of capillary permeability and capillary circulation by means of artificial radioactive isotopes by I.A. Oyvin. The significance of determinations of the total amount of blood in studies of the mechanism of regulation of blood formation by Ya.G. Uzhanskiy. Study of metabolism of macroergic phosphorus compounds in the heart by means of radioactive phosphorus by M.Ye. Rayskina. Some regularities of the process of bonding of tagged amino acids by proteins by S.E. Shnol'. Changes in functional activity of the kidneys in dogs injured by polonium by Z.I. Poluboyarinova. Changes in lungs and other organs on intratracheal administration of radioactive sodium chloride and chromium phosphate by T.A. Kochetskova and G.A. Avrunina. Study of the development in animals of bone tumors arising under the influence of radioactive substances by N.A. Krayevskiy and N.N. Litvinov. Accumulation of radioactive strontium and cesium in the body of embryos under conditions of chronic administration of these isotopes to females by A.A. Rubanovskaya. Morphological changes in the kidneys during acute radiation sickness induced by radioactive phosphorus by E.I. Scherban' and Z.A. Vlasova. Pathologico-anatomic characteristics of pulmonary complications of experimental acute radiation sickness by N.I. Nudretsov. Contribution to the analysis of toxic

and recuperative changes in the metabolism of phosphorus-containing compounds under the influence of some industrial poisons and antidotes by T.A. Prokopenko. The effect of silicic acid on bonding of radioactive metabolites by tissue proteins by T.I. Kazantseva. Study of the metabolism of radioactive thiamine in animal organism by A.Ya. Rozanov, N.P. Bulatskiy, D.A. Tsuverkulov, and L.V. Shcherbakova. Permeability of erythrocytes to phosphates under normal conditions and in burns by V.I. Baydak. Effect of the composition of preservant solutions on the level of carbohydrate-phosphorus metabolism in preserved blood by S.Ye. Tukachinskiy. Utilization of radioactive isotopes in the development of the problem of iono-galvanization by A.N. Obrosov, I.A. Abrikosov, and E.D. Tykochinskaya. The measurement of natural radioactivity in human organs by L.G. Shakhidzhanyan, D.G. Fleishman, V.V. Glazunov, V.G. Leont'ev, and V.P. Nesterov. Isotopic composition of the oxygen evolved in photosynthesis by A.P. Vinogradov, V.M. Kutiurin, M.V. Ulubekova, and I.K. Zadorozhnyi. Translation: AEC-tr-3661 (Bks. 1 and 2).

553. Vsesoyuznoye dobrovol'noye obshchestvo sodeystviya armii, aviatsii i flotu. Pamiatka naseleniyu po zashchite ot atomnogo, khimicheskogo i bakteriologicheskogo oruzhiya (Memorandum to the population on the defense against atomic, chemical, and bacteriological weapons). Moskva, Izd-vo DOSAAF, 1957. 23 p. illus. UA926.V86

Brief description of atomic, chemical, and bacteriological weapons. Ignition substances and methods of putting out fires. How to conduct oneself in conditions of application of atomic, chemical, and bacteriological weapons. Sanitary work; deactivation; disinfection; veterinary work.

554. WANG, HENG-SHOU. Yüan tzu neng fu shen ping yüan li ho fang pi fa (Principles of and ways to avoid atomic radiation sickness). Sciences and Technology Press, Shanghai, 1956.

The first part of this book is devoted to the physiological aspects of radiation sickness of the ionizing type and possible treatments. It further deals with laboratory facilities for handling radioactive materials and warning devices such as color indicator badges and geiger counters. One section deals with the training of personnel who work in close relation to radioactive materials. The book also takes up atomic and hydrogen bomb fallout and possible protection. This work is designed for workers and research personnel doing work involving radiation. This book is largely based on the Soviet translation of a French book of the same name by P. Genand.

555. WANG, YING-LAI. Present status and future of China's research in biochemistry. Sheng-li K'o-hsueh Chin-chan, v. 1, no. 1, 1957, 11-21.

Report presented to the conference of the China Physiology Society in August 1956. Organizations and institutions engaged in biochemical research are listed, together with notation of the projects in which these organizations are engaged. The most pressing problem is the training of personnel. Main subject headings are biological sciences--biochemistry, biochemistry--China. JPRS L-1136-D.

556. With the weapon of science against atomic warfare. Human blood and atomic warfare. Znaniye-sila, no. 5, 1958, 8-9. T4.Z5 1958

This article is the lecture delivered over the Soviet radio by Prof. Linus Poling, California Technical Institute. It deals with the influence of nuclear rays on the albumin molecules and the blood of man. He mentions the research of Prof. Lewis on the effects of radiation and leukemia, also asserts that in the coming years the number of seriously deficient children will increase as a result of a nuclear bomb tests.

557. Work of Soviet scientists in the scientific committee of the UNO dealing with the influence of atomic radiation. Atomnaya energiya, v. 5, no. 4, 1958, 465-467. QC770.A83, v. 5

This paper is based upon the material of the Radio-biologicheskaya komissiya pri prezidium AN SSSR (Radio-Biological Commission of the Presidium AS USSR) from July 11, 1958.

558. WU, JEN-CHIEH, and others. The poisonous gas alarm. K'o hsueh t'ung pao, no. 4, 1959, 126-129.

The system is similar to that described in Douglas M. Considine's "Process Instruments and Controls Handbook", p. 6-84 (McGraw-Hill). It employs developing agents which undergo a color reaction when they contact poison gases. The alarm is then activated by a photoelectric colorimetric method. The color reaction is carried out by a paper tape. The instrument is described with reference to the two diagrams which are omitted in the translation. Main subject headings are engineering--chemical and poisonous gases--detection. Translation: JPRS L-1865-D.

559. YAKOVLEV, V.V., and others. The change of certain indices of the functional state of skin vessels in monkeys affected with acu › radiation sickness. Meditsinskaya radiologiya, no. 11, 1959, 52-56. DNLM

The experiments were staged on 33 monkeys. Investigation covered systolic arterial pressure, arterial tone, skin temperature, as well as the reaction of the vascular system to a thermal stimulus. The arterial pressure and skin temperature decrease throughout the course of radiation sickness. The tone of arterial vessels rises, the reactivity of vessels to a thermal stimulus drops.

560. YARMONENKO, S.P. Luminiscent microscopy of the bone marrow in the action of radiomimetic substances. Meditsinskaya radiologiya, no. 3, 1959, 52-56. DNLM

With the aid of luminiscent microscopy of the bone marrow in white rats, subjected to the action of radiomimetic substances from the group of chloretheylamines and chlorethylsulfates, micronecrotic foci are seen, which are similar with those described by M.N. Meisel and co-authors in irradiated animals. The luminiscent phenomenon appears earlier than changes in the peripheral blood and histopathological changes in the bone marrow. In view of the above luminiscent microscopy of the bone marrow may be effectively employed for early diagnosis of experimental affection caused by radiomimetic substances.

561. YARULLIN, KH.KH. Changes of the higher nervous activity in experimental chronic radiation sickness induced by ionizing radiation. Meditsinskaya radiologiya, no. 12, 1959, 16-21. DNLM

The author studied the changes of the higher nervous activity in 3 dogs (with different types of nervous system) with an experimental chronic radiation sickness induced by daily x-ray irradiation (15 r). Under investigation were the motor defense reflexes and their vegetative components-respiratory conditioned reflexes. The results of the investigations disclose not only a high radiosensitivity of the cortex of cerebral hemispheres, but also an extraordinary high plasticity and great compensatory defensive possibilities of the higher portions of the central nervous system. They were manifested by a cyclic and undulating character of disturbances of conditioned reflex activity with a tendency towards its normalization even after a total dose of 765 r in dogs of the weak type, 1335 r - in those of the excitable type, and 1440 r - in dogs of the strong balanced type of nervous system. The data obtained

divulge a dependence of the character of higher nervous activity disturbances on the individual-typological peculiarities of the animals. Along with that they show, apparently, a dependence of the animals' radioresistance upon their type of nervous system.

562. YASTREBOV, M.T. Natural radioactivity of zonal soils of the European part of the Soviet Union. IN: Akademiya nauk SSSR. Izvestiya, Seriya biologicheskaya, no. 3, 1959, 391-402.
AS262.A6245 1959

Natural radioactivity of zonal soils and of their soil forming rocks up to 220-240 cm in depth as well as of the suprasoil air at a 20 cm altitude from the soil surface has been studied from 29. VIII to 13 X 1957 in the natural zones of the European part of the USSR located along the meridan from the Arkhangelsk taiga down to the southern coast of Crimea. The measurements were carried out by mica counters (BFL-T-80 and Si-2b), by an aluminum (AS-2) and glass copper cathode (MS-4) which registers α, β -soft, β -hard, and γ -radiation, respectively with the aid of a field radiometric device PK-10b and a spherical and hemispherical 9-cm lead shield.

563. YEAGER, HOWARD, D. The Soviet submarine. Armed forces chemical journal, no. 5, 1959, 8-9.
UG447.A75 1959

Rear Admiral Yeager, USN, Acting Antisubmarine Warfare Readiness Executive, states that the Soviets will be capable of planning nuclear powered submarines equipped to fire ballistic missiles while submerged. Soviets are expected to follow the United States' lead in producing nuclear submarines. "The Navy is placing great emphasis on anti-submarine warfare for just as sea power conditions strategy, so our ability to control the Soviet submarine will condition seapower..."

564. YUSIPOV, V.S. Influence of ascorbic acid on the carbohydrate function of the liver and survival of animals in acute radiation sickness. Meditsinskaya radiologiya, no. 9. 1959, 79-81.
DNLM

565. YUSIPOV, V.S. Role of ascorbic acid in radiation sickness. Meditsinskaya radiologiya, no. 9, 1959, 78. DNLM

566. ZAICHIKOVA, N.A. Radiation injuries of cranial bones. Vestnik rentgenologii i radiologii. v. 33, no. 5, 1958, 96-98. RM845.V4, v. 33

Descriptions are given of the observations made on two patients suffereing from pathological alterations in the cranial bones due to an early radiation injury.

567. ZAKHAROV, S.V. Influence of x-ray irradiation on the level of glucose and lactic acid in the inflowing and outflowing blood of the brain. Meditsinskaya radiologiya, v. 4, no. 3, 1959, 77-79. DNLM

Description is given of experiments made on dogs. Main subject headings are biological sciences--radiobiology, x-radiation--biochemical effects and brain--effects of radiation. Translation: JPRS L-866-N.

568. ZAKUTINSKIY, D.I. Problems of toxicology of radioactive substances. Meditsinskaya radiologiya, no. 8, 1959, 86-91. DNLM

569. ZAPOL'SKIY, G. Antiaircraft defense competitions. Sovetskiy patriot, 11 May 1958, p. 3.

In the program of the All-Union Sport Competitions (Spartakiada) a set of air defense exercises are included in the first and second stages. There are five separate exercises to be performed individually and in teams. The first exercise consists of putting on the gas mask while the mask is in the "on the alert" position. The second exercise is a hike in gas masks to test prolonged wearing of the mask. The third exercise consists of extinguishing fires by means selected by the participants. The fourth exercise consists of two elements: decontamination and the crossing of the contaminated area, using available means of skin protection; contamination conditions are simulated. The fifth exercise is a team competition consisting of the transfer of a stretcher "casualty" from a building and training in bandaging. Specific conditions are effected for all of these exercises and the umpires are selected from among the air defense public instructors. It is recommended that the DOSAAF municipal and rayon committees credit each participant of the Air Defense program competition with the completion of required individual minimum for a status of "Ready for Air Defense first grade". Children as well as adults partake in these competitions. Translation: AF11879010.

570. ZAPOL'SKIY, G. Passing of the tests in the knowledge of the norms "Ready air defense". Voyennyye znaniya, no. 3, 1958, 32. U4.V874 1958

The Fourth All-Union Convention of DOSAAF of the USSR noted that there are great deficiencies in training the population in air defense. The convention stressed that further instruction of the whole population in antiaircraft, antiatom, antichemical, and antibacteriological defense was the most important task of the convention. To this end a new and expanded program has been instituted. One main objective is more complete preparation of instructors and practical problems. The use of radio, newspapers, etc., is recommended for lectures and discussions as well as to alert the people to meetings. Some topics of discussion were suggested such as how to use a gas mask, how to use a shelter, how to preserve food and water from contamination by toxic substances, etc. Under a new program "Ready for Air Defense" consists of eight norms: modern means of destruction from the air; individual defense means; collective defense means; fire prevention; rules on conduct when "danger" is signalled by the local Air Defense; first aid; liquidation of the consequences of an air attack; rendering of veterinary assistance to animals. Each norm foresees what has to be known and done under various conditions and locations. In order to pass the norms each citizen must answer one theoritical question and fullfill practically one exercise of each norm. It is the duty of DOSAAF organizations and personnel to carry out the preparation of all citizens for the passing of tests in the knowledge of norms of the program "Ready for Air Defense" first class. Translation: AF1189083.

571. ZARETSKAYA, YU.M. Course of radiation sickness in dogs with extirpated lymphoid organs. Meditsinskaya radiologiya, no. 6, 1959, 32-37. DNLM

Experiments conducted on dogs show that the removal of lymphoid organs complicates the course of radiation sickness; following x-ray irradiation in the dose of 400 r. The weakening of the function of the reticuloendothelial system played the main role in the decrease of the organism's resistance to the action of ionizing radiation.

572. ZEDGENIDZE, G.A., and others. On the problem of radiation reactions and radiation sickness. Meditsinskaya radiologiya, no. 2, 1958, 3. DNLM

No grave forms of radiation sickness were found in patients receiving doses of 6,000 to 30,000 r due to the prophylactic measures taken.

573. **ZHELUDEV**, A. Smoke as a protection against light radiation. The protection of troops against the atomic weapon. Krasnaya zvezda, 13 Dec 1957, 2.
U4.K78 1957

The use of smoke as protection against rectilinearly propagated light radiation from the fireball of atomic explosions for combat personnel and for ground installations is considered, with background information from American and unspecified foreign press releases. Coal smoke and artificial fogs must be generated in concentration from 1.5 to 2 times that of ordinary combat smoke screens; this creates difficulties for ground troops. Smoke screens should be laid upon air-raid signals. Main subject headings are engineering--ordnance, radioactivity--countermeasures, smoke screens--applications, and radiation--countermeasures.

574. **ZHIZHINA**, N.A. Influence of generalized x-irradiation of mineral metabolism in bone tissue. Patologicheskaya fiziologiya i eksperimental'naya terapiya, v. 2, no. 1, 1958, 34-38. R91.P66, v. 2

Changes induced by radiation in phosphorus-calcium metabolism in bone were studied in rats with the aid of phosphorus-32 and calcium-45. It was concluded that changes in bone mineral metabolism provide an index of the dystrophic processes occurring in bones immediately after exposure to doses of 700 r x-radiation. These changes were followed for a period of 50 days. The process of calcification was found to be delayed in irradiated rats, and the process of healing was delayed in irradiated traumatized bones. Translation: JPRS-284.

575. **ZHURAVLEV**, A.I., and others. Chain reactions in the lipids of the liver in radiation affection. Meditsinskaya radiologiya, no. 8, 1959, 32-36.
DNLM

It has been demonstrated that the irradiated preparations of lipids as well as lipids of the irradiated organisms have an elevated capacity for the formation fo peroxide compounds. At the same time the antioxidative capacity in the liver lipids of irradiated organisms drops. According to the authors' opinion, the formation of primary peroxides in the irradiated lipids leads to the development of a chain oxidation reaction, which destroys the natural antioxidants and, as a result of this, a noticeable accumulation of peroxides in the samples of fats under study. It is shown that the degree of accumulation of free fatty acids in the fat as a result of oxidative and autolytic processes is correlated with the hemolytic activity of the fat itself.

576. ZHURKOV, M. Decontamination. Voyennyye znaniye, no. 7, 1956, 18-19. U4.V874 1956

This article concerns troop decontamination in combat. The means suggested are basic because of the conditions. If possible, it is urged that the commanding officer have his men partially decontaminate themselves and equipment before leaving the contaminated area. These initial steps include brushing radio active dust and mud from clothing and weapons. If conditions allow, then further steps may be taken such as rubbing clothing and weapons with rags soaked in water, gasoline, or kerosene, or in winter, with clean snow. Complete decontamination of men and armaments is usually undertaken at specially equipped stations where jets of water, compressed air, vacuum cleaners, and even machines for gas decontamination may be used. Those working on decontamination must wear gas masks and other means of individual protective clothing which may be taken off only on a special order from the commanding officer. All contaminated materials must be stocked somewhere downwind for later burial. If decontamination is carried out timely, it permits men to save their lives and fullfill their combat mission. Translation: AF1017791.

577. ZIL'BER, L.A., and others. Character of changes in the antigenic structure of proteins in ionizing radiation. Meditsinskaya radiologiya, no. 5, 1959, 3-6. DNLM

In comparing the antigenic structure of rabbit's kidneys, one of which was removed following total irradiation, the author has not revealed any effect of ionizing radiation on the antigenic structure of the tissue. In similar experiments with the rabbit's liver (a portion of which was removed surgically prior to irradiation) there were noted distinct antigenic changes developing after the irradiation. However, in a number of experiments such changes developed due to the surgical procedure without irradiation. For a final decision of the problem on the action of ionizing radiation on the antigenic properties of proteins experiments must be performed on animals of pure lines.

578. ZLOBIN, L.I., and others. Methods of measuring the radioactivity of man. Meditsinskaya radiologiya, no. 6, 1959, 85-87. DNLM

579. ZOTIKOV, A.A. Radiobiological effect of interrupted irradiation by x-rays. Biofizika, v. 3, no. 4, 1958, 524-526. QH505.A1B53, v. 3

During the action of interrupted irradiation with x rays on wheat shoots, changes in the frequency of interruption from 1 to 60,000 per min with a ratio of 1:1 between the "light" and "dark" intervals (the duration of the interval being from 30 sec to 0.5 msec) did not appreciably affect the inhibition of root growth. In comparing brief and prolonged irradiation, the "time factor" begins to influence the effect when the time of irradiation is increased to 4 to 7 hr, which is in agreement with the results of investigation of the permeability of wheat roots and the mitotic activity after irradiation.

580. ZUBKIN, A.S. Individual'nyye sredstva protikhimicheskoy zashchity (Individual measures for anti-chemical defense. Moskva, DOSAAF, 1958. UG447.Z8

Gives information concerning chemical warfare and individual safety measures.

581. ZUBKOVA, S.R., and others. Biochemical mechanisms of the protective effect of alcohol in mice treated with x-rays. IN: Akademiya nauk SSSR. Doklady, v. 126, no. 6, 1959, 1354-1357. AS262.S3663, v. 126

Experiments were carried out to determine the conditions which induce the protective effects of alcohol against irradiation, to establish the effects of preliminary administration of alcohol on the catalase activity and alcoholdehydrogenase in liver at various stages following irradiation, and to find the effects of preliminary administration of alcohol on the structural changes induced by irradiation on the bone marrow nucleoprotein.

582. ZUBOVSKII, G.A. Characteristics of the clinical course of burn shock upon irradiation of the organism with penetrating radiations. Vestnik rentgenologii i radiologii, no. 2, 1958, 84-86. RM845.V4 1958

The clinical course of burn shock which developed in rabbits during the initial phases of radiation sickness was investigated. Radiation sickness was induced by total-body x-irradiation at a dose of 700γ with a dose strength of 27γ/min. Observations on animal behavior, pupil light reflex, corneal reflex, muscle tone, and hematologic changes were recorded. Translation: JPRS 1408-N.

583. ZUYKOVA, E.A., and others. Intussusception as a complication of radiation sickness. Vestnik rentgenologii i radiologii, v. 32, no. 5, 1957, 89-92.
RM845.V4, v. 32

The digestive tract is highly sensitive to ionizing radiation, and the changes taking place in it have a prominent place in the clinical picture of the radiation sickness. The secreting function of the digestive glands is upset, as well as the processes of digestion and absorption. The intestinal wall becomes extremely permeable. Motor function disorders are accompanied by peristaltic contractions, teresmus. This finds its clinical expression in nausea, vomiting, colicky pains, and diarrhea. Marked disorders of the motor function can lead to intussusception, which complicates considerably the subsequent evolution of the radiation sickness. Three cases of intussusception of the thin and large bowels in dogs who had received a total x-ray dose of 500 r are described. Acute radiation sickness in these animals ran a more severe and rapid course than in the controls. All cases ended in death on the 6 to 10th day after irradiation with symptoms of intestinal obstruction. Morphological changes in the dead animals were typical of acute radiation sickness and differed from the irradiated control cases by more marked dystrophic changes in the liver, kidneys, and heart.

584. ZUYKOVA, YE.Z., and others. Effect of ionizing radiation of progeny following irradiation of animals during the last days of pregnancy. Vestnik rentgenologii i radiologii, no. 5, 1959, 34-41.
RM845.V4 1959

This report was published from the Radiological Department of the State Scientific Research Institute of Roentgenology and Radiology of the Ministry of Health RSFSR. Observations were made of 29 pups. Results show that total body single irradiation of dogs during the last days of pregnancy with a dose 500 r led to the development of acute radiation sickness in the newborn pups; pups born irradiated during the final days of pregnancy were, in the majority of cases, non-viable and died sopn after birth, etc. Translation: JPRS:2224.